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DIESEL RAILWAY TRACTION SUPPLEMENT

The October issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1s.

DISPATCH OF THE "RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 *of* 1940, *and No.* 359 *of* 1941

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—
Mondays to Fridays - 9.30 *a.m. till* 5.0 *p.m.*
The office is closed on Saturdays

The Future of the Classes

FROM time to time the suggestion is made that class distinction should be abolished on all British railways, as it has already on many urban and branch lines. At present, the question resolves itself mainly into one of nomenclature, for it cannot be doubted that on main-line trains there is the need for more privacy and elbow room than would be provided by a universal class—whether such accommodation be called first class or saloon with a supplementary fare. Before 1872 there were three motives which led railway travellers to pay higher class fares, namely, desire for greater speed, for greater comfort, and for more privacy. The policy initiated by the Midland Railway in that year of providing third class accommodation on all trains removed the first of these motives. Subsequent developments, such as the introduction in 1893 of third class dining cars, have diminished the numbers of travellers paying higher class fares. That concession followed those of third class upholstered seats, corridor carriages, and lavatories, and removed from the first class what on January 13, 1894, *The Railway News* called "the monopoly, if not of the comforts, at any rate of the luxuries of travel." Such modern urban electric railways as the London tubes have had but one class from their inception, but the suburban services of the main-line railways have retained at least two classes (first and third) and in some cases, until 1938, second class also. War conditions resulted in one-class accommodation being extended on February 1, 1940, to all London Transport trains (except through trains between the Aylesbury and Watford Joint Lines and the Metropolitan Line), and drastic further reductions of first class facilities in the London suburban area were made on Monday last, October 6. An article at page 351 outlines the development of passenger class distinctions on British railways.

The British Association Meetings

The recent meeting in London of the British Association, at which papers were delivered under the general heading of "Science and the World Order," seemed to show some confusion of thought as to whether or not there would be enough consumable goods for the populations of the world after the effects of the war had been overcome, or whether it would be necessary to continue in that period to make the utmost savings of natural resources. In view of the fact that the chief problem of industrialised nations before the war was the disposal of their plentiful production, and that since the outbreak of war productive capacity had been expanding at an unprecedented rate, and almost certainly very much more rapidly than it has been affected by destruction, there can be little room for doubt that eventually the world should be able to settle down in peace to the enjoyment of universal abundance. It has been estimated—and the estimate appears to be quite reasonable—that in this country alone something like 70 per cent. of manufactures are capital goods, and only the remaining 30 per cent. or so for consumption. That points unmistakably to a time when the whole world shall have been so well equipped that the necessity for capital production will be greatly lessened. Inevitably, therefore, there will be scope for much greater leisure, and, with it, the opportunity to develop the arts and culture.

The South Manchuria Railway in 1940

For the 1940 financial year, the South Manchuria Railway secured a total revenue of 799,000,000 yen, against expenditures of 722,000,000 yen. The profit of 77,000,000 yen was 1,130,000 yen less than in the previous year. Compared with 1939, revenue showed an increase of 67,000,000 yen, and expenditure of 68,000,000 yen. The relatively low level of revenue is attributed to the difficulties experienced in obtaining capital for financing operations, shortage of materials and labour, higher commodity prices and wages, and the generally dull export and import trade in Manchuria. The undertaking covers many forms of industrial activity apart from transport. Revenue from mining and oil enterprises showed satisfactory gains over the previous year, but railway, har-

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bour, and bus businesses were not so profitable. On June 20 last it was decided to maintain a dividend of 8 per cent. per annum and to issue 300,000,000 yen of debentures.

Bituminous Surfacings on Roads

Although the direct concern of railways with roads is generally limited to the upkeep of their goods yards and station approaches, the experiments in restoration of road surfaces by relatively inexpensive means, outlined in the paper read by Mr. Robert Slater before the Institution of Civil Engineers on September 30, are of importance. The paper explains that in 1939 the Road Research Laboratory of the Department of Scientific & Industrial Research, in co-operation with the Ministry of Transport, laid down on the Colnbrook by-pass a series of bituminous surfacings or carpets, in which both granite and gravel aggregates were employed, and the proportions of the remaining ingredients—*i.e.* sand, filler, and binder (the last mentioned consisting of bitumen or tar)—were varied. Although the exact limits of the most successful carpets will not be known until the experiment is concluded, it has been possible, after two years of exposure to traffic and weather, to determine the limits of the compositions beyond which durable carpets will not be obtained. In this connection the Institution of Civil Engineers has prepared diagrams depicting the extent of satisfactory carpet area which has resulted from varying admixtures.

New L.N.E.R. Electric Locomotive on Test

The first of the new mixed traffic electric locomotives for the L.N.E.R. Manchester—Sheffield main line has lately been undergoing tests on the Manchester South Junction & Altrincham Railway. This suburban line, jointly owned by the L.M.S.R. and the L.N.E.R., was electrified on the 1,500-volt d.c. system with overhead conductors ten years ago, an undertaking which was described in THE RAILWAY GAZETTE of May 8, 1931, and is therefore available for the testing of the first locomotive of a batch of 70 which were put in hand when work on the Manchester—Sheffield electrification was begun. The war called a halt to this undertaking, but it was decided to complete one locomotive so that, when electrification is eventually resumed, the remainder may incorporate any modifications indicated by the light of experience. The locomotive was described and illustrated in our issue of March 7, 1941, and it may be recalled that the articulated bogie, or Bo + Bo, design was adopted. As it will be required to handle all sorts of traffic, from fast passenger to slow goods, over a line abounding in long severe grades, this was an obvious choice; but, to assure steady riding at the maximum speed of 65 m.p.h., some ingenious devices have been incorporated. Certainly our experience last week when riding on the locomotive tended to confirm that success in this direction had been achieved. The locomotive, hauling a 240-ton corridor train, accelerated rapidly to 65 m.p.h. and rode smoothly at all speeds.

Luminescent Materials in Wartime

A bulletin issued by the Research & Experimental Department of the Ministry of Home Security explains how, in the absence of controlled lighting and suitably-placed white surfaces, limited use can be made of luminescent materials in blackout conditions. After defining luminescence in detail, the bulletin goes on to describe the materials available and their properties, as well as how "irradiation" is induced, discriminating between "fluorescence," which needs continual excitation, and "phosphorescence," which remains for a time after excitation has ceased. Among the possible applications listed are A.R.P. signs, instrument boards and shelter entrances (with fluorescent materials), and obstruction markings, emergency lighting in shelters, and emergency signs in factories (with phosphorescent materials). It is pointed out, however, that none of the latter materials so far available will remain usefully visible throughout the night after excitation by daylight, and a second limitation consists of the difficulty which the eye has of seeing objects of very low brightness. These disadvantages preclude the use of luminescent materials on carriageways for the guidance of vehicular traffic, but phosphorescence can be applied to signs and markings for assisting pedestrians during the early hours of darkness.

Some Spanish Sleeper Statistics

The supply of timber for sleepers for renewals and for new construction in Spain constitutes a grave economic problem, the principal features of which were dealt with in a paper read before the Madrid Association of Civil Engineers by Señor Enrique Pastor, and published by our contemporary *Ferrocarriles y Tranvias*. The timber preferably used for sleepers on the Spanish railways is oak, or occasionally creosoted pine. For the broad gauge (5 ft. 6 in.) the usual dimensions are 2·60 m. × 0·24 m. × 14 m. (8 ft. 6⅜ in. × 9½ in. × 5½ in.), and the number generally used is 1,500 per km. (2,413 a mile). There are actually, according to the paper, 16,461 km. (10,228 miles) of railway in Spain, of which total 12,116 km. (7,528 miles) are broad gauge (5 ft. 6 in.) and 4,345 km. (2,700 miles) narrow gauge. There are 1,542 km. (958 miles) of double track, and, allowing 20 per cent. for sidings, a total single-track length of about 20,426 km., or 12,692 miles. There are therefore some 30,639,000 sleepers in use, and as the average life of an oak sleeper may be taken as 10 years the number required for normal renewals is about 3,000,000 annually. This means a yearly requirement of 200,000 to 250,000 cu. m. of timber. The average annual yield of the forests in Spain is calculated at 2 cu. m. for each hectare (2·4 acres) of mature timber, and as the planted areas recorded amount to some 500,000 hectares of oak, 1,300,000 hectares of pine, and 240,000 of beech, the danger of a shortage is evident, unless recourse can be had to imported timber, or steel, or concrete. The author advocates the large-scale planting of quick-growing eucalyptus, as a partial or long-view solution.

The Pennsylvania and the Wabash

The application of the Pennsylvania Railroad to take over the Wabash RR., which, as mentioned in our September 12 issue, resulted in strong opposition by the New York Central, owing to the possible implications of such a transfer, is now likely to be granted by the Interstate Commerce Commission. It was the fact of joint ownership by the Pennsylvania and the Wabash of 52 per cent. of the Lehigh Valley RR. stock, and a substantial Pennsylvania holding in the New York, New Haven & Hartford, that aroused some fears of "encirclement" on the part of the New York Central, but the latter's opposition was withdrawn when the Pennsylvania agreed to place these holdings in both the Lehigh Valley and the New Haven under a trust agreement with an independent trustee. Opposition has since arisen from an unexpected quarter, various New England interests, including the Boston Port Authority, contending that the Pennsylvania has other substantial holdings in this region, and in particular a controlling interest in the company known as Pennroad, which in its turn owns a considerable amount of stock in the Boston & Maine RR., and claiming that the Pennsylvania should be compelled to divest itself of all its New England holdings before the Wabash plan is allowed to proceed. The New England opposition, however, has received little encouragement from the I.C.C. commissioner concerned in the hearing, and the I.C.C. has refused to accede to the latter's application to compel Pennsylvania and Pennroad officials to testify as to what control, if any, the Pennsylvania RR. has over Pennroad affairs.

Steam Locomotive Valves in Germany

The German State Railway has long used only piston valves for its steam locomotives, and it appears from a report made by a commission of Spanish railway engineers which visited Germany last year, where the members made a long and detailed tour of inspection on the Reichsbahn,

that Dr. Wagner, Chief Locomotive Designer, in agreement with the locomotive manufacturers, has no intention of departing from this practice, even for locomotives designed for the highest speeds, which are apparently intended, when peace returns, to run into three figures. The report states that poppet valves have been well tested in Germany, and whereas it is conceded there that they do give rise to some economy in coal consumption when first placed in service, this economy drops considerably after a time, and the increased cost of maintenance is not balanced by the saving in fuel. The Germans also consider piston valves simpler to manufacture and more robust and economical in maintenance, and for these reasons have decided to use no other type of valve on steam locomotives. It is remarked in the report that when the Austrian Federal Railways were incorporated in those of the Reichsbahn after the *Anschluss* in 1938, there was a movement to extend the use of poppet valves, which the Austrians had found eminently successful on numerous locomotives. Nevertheless, the decision was adhered to that piston valves should remain the Reichsbahn's standard.

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Poppet Valves for Steam Locomotives

Although, as recorded in the foregoing note, the German State Railway authorities have decided to adhere to piston valves as the standard for all steam locomotives, the success of poppet valves elsewhere should not be overlooked. The extremely efficient rebuilt Chapelon Pacific locomotives in France all use oscillating cam poppet valves to which much of their success has been attributed, and the designer has emphasised that for the high steam temperatures generated in these engines poppet valves are more reliable and economical in maintenance than piston valves. On page 355 of this issue we publish a summary of the results achieved after exhaustive tests with one of the standard Pennsylvania "K-4s" Pacifics which had been fitted with poppet valves. From this it will be seen that there was a considerable increase in power output, and that the poppet valve gear gave thoroughly reliable service. Elsewhere good service is reported with poppet valve engines, notably in Italy, Egypt, the Federated Malay States, and Algeria. Indeed, where results have been indifferent the cause may often be traced to faulty fitting or maintenance or to detail defects, which it is admitted sometimes occurred in the earliest poppet valve applications, but which have all been completely overcome. The new American valves have been developed after comprehensive research and tests aimed at eliminating all the defects hitherto found in poppet valve systems. It seems as if success had crowned these efforts.

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The Black Sheep

A curious characteristic of the steam locomotive, for which many explanations have been hazarded, is that of any series of engines of uniform type turned out of the shops in a single batch, it is seldom that the performance of all shows equal efficiency. Frequently, indeed, a class of locomotive will contain one or more black sheep, which are the bane of the sheds to which they are attached; either they are bad steamers, or they are addicted to heating or other troubles. For persistent heating of bearings minute inaccuracies of erection may be responsible; but other vagaries are less easily explained. A recent issue of our American contemporary *Trains* related the history of a Class "K5" Pacific of the Erie RR., No. 2917, which was even blacker than most of her kind. "If Erie had a wreck, 2917 was in it every time. After several engine crews lost their lives in her, new crews would turn her into the shop on the least provocation." The remedy in this case, however, seemed surprisingly simple. "One day she had another wreck, was turned in, and promptly disappeared. A 'new' engine, No. 2945, emerged from the shops a few months later. With the new number the trouble stopped." It may be assumed, however, that considerably more than mere renumbering was concerned in this reformation, and that the additional refinement of a new number was a concession to psychology rather than performance.

Recovery after the War

PROFESSOR J. R. HICKS, Professor of Political Economy at Manchester University, recently discussed the war debt at a meeting of the Manchester Rotary Club. According to a report in *The Manchester Guardian*, Professor Hicks said the future of this country would not be ruined by the debts we were creating, but, on the other hand, we had to deal with them. Some writers in the press were too optimistic. The line of argument of quoting writers of the last two centuries who had said Britain was going to be destroyed by her debts was not very convincing. One of the main reasons why the debts of earlier wars had caused so little trouble was that the population was expanding so rapidly whereas our present tendency was in the direction of a falling population. And there was no prospect whatever of a terrific rise such as occurred in the nineteenth century and made the earlier war debts easier to bear.

Nevertheless, we should not be ruined by our war debts, and one reason why they were bound to be less serious than after the last war was that rates of interest were much less, because the Government had learned how to control the monetary system much better than it used to do. We were going to be left at the end of the war with a real loss of national wealth in the form of stocks lost and used up, but we did not need to be pessimistic. Provided political conditions were not too unfavourable the actual loss of real wealth should be capable of replacement in a period of time no longer than the duration of the war itself. Discussing a capital levy, Professor Hicks said the late Lord Stamp had calculated in 1923 that it would take one shilling off the income tax. His (the speaker's) own calculation, based on the taxation of 1936, was that it would take 4d. off the income tax. Clearly, that would no more than nibble at the post-war debt problem. If there was to be any solution by such means, it would not be the sort of capital levy proposed by the Labour Party in 1923, but a good deal more drastic, going right down the community, and without the same political attractions.

The remarks of Professor Hicks provoke thought as to the growth of the national debt. In a hundred years before the war it had increased tenfold, yet it is a fact that today the productive capacity, which is the potential wealth of this country, is, like the national debt, greater than ever before. Present expenditure, in its great volume necessitates the realisation of assets by the nation just as the high level of taxation has made it necessary for many individuals to draw on their capital to meet current liabilities. Nevertheless, after the war it may well be necessary to continue to spend on almost as large a scale as at present, but to direct expenditure into productive commercial enterprises designed to create wealth and employment instead of war material.

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Locomotive Improvements

IMPORTANT experiments have recently been carried out by the Pennsylvania Railroad with one of the well-known "K-4s" Pacific locomotives, a class of engine which for many years past has been the standard type in fast passenger service on that line. The chief purpose was to test a new arrangement of poppet valves and gear for the steam distribution. After the engine had been fitted with new cylinders and the poppet valve equipment and driving gear, it was, without further changes, put through a series of tests in heavy passenger service. Of these we give on page 355, a summary, supplemented by particulars of further trials on the locomotive testing plant at Altoona, carried out after the engine had undergone certain further modifications, including the fitting of a new superheater designed to increase the steam temperatures and the steam area through the elements. At the same time larger steam pipes were provided and modifications made to the blast pipe, all with the object of improving the steam flow.

The performance of the engine on both track and plant was noteworthy, as showing what can be accomplished by paying attention to the size of cylinder ports and passages; and the difference between the power developed by this engine before and after the changes, draws forcible attention to the great losses occasioned by the use of inadequate steam pipes and

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valves in proportion to cylinder dimensions. It will be seen from our description of these tests that with 70,000 lb. of steam per hr. passing through the cylinders it has been possible to increase the power indicated by no less than 1,300 h.p. at about 100 m.p.h., while at 60 m.p.h. the gain is about half that amount. Whereas the standard engine developed 3,500 h.p. at 60 m.p.h. and 2,700 h.p. at 100 m.p.h., as modified it was able to exert with but little variation about 4,000 h.p. throughout this range of speed. The falling off in indicated power at high speeds has hitherto been characteristic of the steam locomotive and can be counteracted only by the use of adequate valves and steam piping. Naturally the demand now made for high sustained speeds has called attention to these features, with the result that it is common practice now to fit larger valves in proportion to cylinder volumes, and, judged from that standpoint, the "K-4s" Pacifics with 12 in. valves for 27 in. cylinders can hardly be said to measure up to modern standards. Modern practice is to use high pressures and relatively smaller cylinders, thus enabling large valves to be employed in proportion to the cylinder capacity, and with very good results. Thus the New York Central "Hudsons" of 1927 had 25 in. cylinders and 14 in. valves, and at 65 m.p.h. could develop 4,080 cylinder h.p.; but practically the same engine built in 1938 with 22½ in. cylinders, with the same valves and a steam pressure of 275 lb. per sq. in., as against 225 lb., developed on test 4,700 h.p. at 75 m.p.h.

While the value of large steam ports has long been evident, it is strange that it is only in comparatively recent times that much attention has been devoted to this valuable feature. It is now many years since the late Mr. G. J. Churchward showed that his six-coupled engine *Albion* could, with 18 in. cylinders, and 10 in. valves, develop 1,100 db.h.p. at 60 m.p.h., working at 23 per cent. cut-off. If we assume that when doing so the engine indicated 1,250 h.p.—and it would certainly not be less—then the mean pressure would have been 65 lb. per sq. in., or say 30 per cent. of the steamchest pressure. This was done with saturated steam. At a much later date Mr. R. E. L. Maunsell carried out a series of experiments with a class of six-coupled express engines built by the late Mr. R. W. Urie with the object of determining the steps that should be taken to improve their power and efficiency. As a result of numerous trial runs in passenger service, each made after certain detailed changes had been carried out, it was finally found that by reducing the cylinder size from 22 to 20½ in. and opening out the steam ports, together with an increase in the boiler pressure from 180 to 200 lb. per sq. in., the modified design could develop some 1,400 i.h.p. against a maximum of about 950 obtained during these tests, which were made between Waterloo and Salisbury. The design of the locomotive of the future to meet the exacting requirements of high speed operation with heavy trains will present an ever-increasing problem, the solution of which will largely be found in the proportions of the valves and the arrangement of the valve gear, whether poppet or piston type valves are used. If, however, the advantages from improved valves and valve gears are to be realised in service, the boiler must be adequate to supply steam under all conditions of working; for the boiler always has been, and must remain, the controlling factor in locomotive performance.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

A Locomotive named "Phlegethon"

London, W.C.1, September 20

To the Editor of The Railway Gazette

Sir,—At page 233 of your September 5 issue you published a letter from Mr. G. A. Sekon apropos the name *Phlegon* or *Phlegethon*, as applied to two locomotives of the L.S.W.R. Mr. Sekon says of the word *Phlegethon* (a river of Hell) that it would be a peculiar choice for the name of a locomotive.

Has he overlooked the fact that it was a G.W.R. engine of this name which hauled Queen Victoria on her first rail journey, on Monday, June 13, 1842? This G.W.R. *Phlegethon* was one of the 62 "Firefly" class of 7-ft. singles (2-2-2). It was built by Fenton, Murray & Jackson of Leeds; was delivered in May, 1842; and ceased work in January, 1866.

Many of the sister locomotives had names associated with Hell, or the underworld, such as *Charon*, *Medusa*, and *Lethe*.

Yours faithfully,

CHARLES E. LEE

Valve Gears for High-Speed Locomotives

Franklin Railway Supply Co. Inc.,
Lincoln Building,
60, East Forty-Second Street,
New York
August 5

To the Editor of the Railway Gazette

Sir,—I was very interested in reading the editorial in The Railway Gazette of June 6 regarding valve gears for high-speed locomotives, and it reminded me of the help you gave me in 1935 when I was investigating the poppet-valve development in England. As a result of the development work we did at Baltimore, the Pennsylvania Railroad applied the Franklin system of steam distribution to its standard "K-4" Pacific type passenger locomotive No. 5399 for test. The results were so satisfactory that the Pennsylvania Railroad is building two new locomotives of the 4-4-4-4 type for high-speed passenger service, which are being equipped with the Franklin system.

I cannot write without mentioning the interest which The Railway Gazette creates in the United States. The regularity with which it is received and the complete coverage of items of railroad interest all over the world which the various issues contain, has caused a great deal of favourable comment among railroad men and those of us interested in railroad work. The people of the United States are keenly interested in doing anything possible to help Britain, and the manner in which the British people are carrying on, under the barbarous aerial attacks to which they have been subjected, has created a tremendous feeling of admiration on the part of the American people.

All of us are, of course, impressed by the things with which we come most commonly into contact, and the regularity with which The Railway Gazette is received and the dignified manner in which the items of interest to its readers are presented, exemplify to us the morale of the British people. I have heard this comment made so many times I thought you would like to know.

Yours, etc.,

G. W. ALCOCK,
Vice President

[We publish on pages 355-358 an article on the tests made with the Pennsylvania locomotive fitted with the Franklin system of steam distribution.—Ed. R.G.]

Drowsy on the Footplate

London, September 29

To the Editor of The Railway Gazette

Sir,—With reference to the letter from "Hardened Driver" in your issue of September 26, I had not overlooked the points he mentions, nor did I suggest that drivers must be drowsy if they do not make up lost time, for I am well aware that they cannot always do so. In the particular instance I quoted, however, which, unfortunately, may be observed all too frequently still, it was obviously a case of the driver never varying his cut-off at all, because, as I mentioned, his speed varied almost exactly with the gradients. The engine was blowing off now and again, so it is unlikely that there was any difficulty in maintaining steam. There were no permanent way restrictions, nor any other cause for the failure to regain time. I feel sure that everyone sympathises with the difficulty of engine-driving and firing in present circumstances, and there is no doubt that very many engine crews do consistently do their best. It is a pity, however, that there are some who obviously fall short of this.

Yours faithfully,

HARDENED TRAVELLER

PUBLICATIONS RECEIVED

The Universal Directory of Railway Officials and Railway Year Book, 1941-42. London: The Directory Publishing Co. Ltd., 33, Tothill Street, Westminster, S.W.1. 572 pp. 8½ in. × 5½ in. Price 20s. net.—This well-known volume, originally issued in 1895, reaches with the present edition its forty-seventh year of publication. Widespread attention is being given to the preservation as far as possible under war conditions, and the post-war expansion, of the British export trade—a policy which, of course, is being fostered by Government encouragement. The up-to-date information contained in this volume is therefore of particular importance at the present time, as it facilitates railway officers and others keeping in touch with the personnel on railways throughout the world for the exchange of information concerning research and developments in all phases of railway operation and maintenance.

Although hostilities in many parts of the world have again made it impossible this year for information to be obtained direct from some places, "The Universal Directory of Railway Officials" has been successful in securing up-to-date details of many of the world's railways to an extent that was not thought practicable in the early stages of preparation. Within the limitations imposed by war conditions, the lists of railway officers have been revised, and the brief descriptions of the chief railway systems of the world, with the latest available financial results, include the most recent changes of which precise information is obtainable.

There are again three indexes, namely, (1) an index to countries; (2) a general index, including all references to railways and statistical and other information; and (3) a personal index of railway officials.

Ward Capstan and Turret Lathes.—A copy of their 1940-41 catalogue has been sent to us by H. W. Ward & Co. Ltd., of Dale Road, Selly Oak, Birmingham. This firm's machines are used in the majority of railway companies' works and in those of firms supplying locomotives and rolling stock to railways at home and abroad, and have a deservedly high reputation. The catalogue is an excellent production and its 260 odd pages, measuring 8½ in. by 5 in., are filled with useful textual information and tables concerning the design of various machines and components. The numerous illustrations assist considerably in describing the details of machines and the layout of tools; there are also some useful capacity charts and oiling diagrams. The catalogue has two main sections, headed respectively "Capstan & Turret Lathes" and "Small Tools & Accessories," and a comprehensive index is provided. In an introduction the firm expresses the belief that buyers, users and operators of machine tools will wish to retain this catalogue as a permanent reference; we regard this as a certainty once a copy has come into their hands.

Universal Electric Tools.—The Consolidated Pneumatic Tool Co. Ltd., well known as a pioneer in the development of universal electric tools, has recently issued a catalogue, No. 899, in which is set forth a considerable amount of descriptive, illustrated matter concerning electrically-operated drills, reamers, and tappers, also screwdrivers, nut runners, grinders, sanders, and buffers. These tools, every one of which has embodied in its design and construction the outcome of years of experience in manufacturing this class of product, are adapted for a variety of uses. Beginning with midget tools for the radio industry, the wide range leads up to much larger and more powerful tools for the heavy industries, including railway shops and shipbuilding establishments. The catalogue is highly informative and includes tabulated particulars of the various tools.

THE SCRAP HEAP

ROTHSCHILD PARTIES

Foreman S. W. Hall, who has retired after 45 years' service on the Metropolitan Railway, was often fireman on the "Rothschild Special." It consisted of a saloon and two coaches, and was used by anything from 50 to 100 guests of Mr. Alfred de Rothschild to take them to his week-end parties at his Halton house. What remains of the special to-day—one big saloon—is in good condition, and is used by officials for special inspections of the line.

* * *

STOLEN RAIL TICKETS

For receiving stolen rail tickets which were to have been issued to soldiers for free travel, three R.A.O.C. men have each been sentenced by an Aldershot court-martial to 56 days' detention. At their trial two of the men said it was common in their unit for men to sell these tickets to each other.

* * *

"The fuel shortage has affected the Eireann railways too, both as regards the number of trains running and the speed of those that do manage to run. You can't keep a good head of steam up on very inferior coal, and we certainly have got very inferior coal here. I read a day or two ago of a train in the South that went slower and slower until finally it stopped altogether on a bridge. Presently the guard came along the carriages shouting, "Who owns the bike in the van?" "I do," said one of the passengers. "Well, get on it," said the guard, "and ride to the next station and ask for another engine or we'll be here till the war's over!"—*From a radio broadcast.*

* * *

One old fellow whom I knew years ago objected to Latin as a foreign tongue, and insisted on "God willing" instead of *Deo Volente*. He wrote a card to a prospective host, saying, "I shall arrive at Barnstaple, G.W., at noon next Monday." He had a note by return: "Don't do that. The Southern Railway station is far nearer our house."—*From "The Church Times."*

* * *

For a short space of time after 8.17 a.m. on September 25, there occurred at Liverpool Street a remarkable phenomenon for this particular time of the day. The departure of the 8.17 a.m. for Enfield Town left not a single train standing at any platform between Nos. 1 and 9 inclusive, giving the whole west side a deserted aspect rarely witnessed at such a busy terminus. The only train to be seen at all was the 8.20 a.m. departure for Cambridge, which was awaiting time at Platform 10 with Class "V4" 3401, *Bantam Cock*, in charge. This loneliness, however, was soon dispelled by the almost simultaneous arrival of the 7.44 a.m. from Chingford and the 7.32 a.m. from Broxbourne. Such an unusual state of affairs was probably due to poor visibility on the line, which necessitated the use of fog-signals inwards from Bethnal Green.

"If you ask me, Edith, this abolition of 1st class carriages makes nonsense of all the ideals for which we're fighting."

A recent addition to "The Daily Express" Pocket Cartoon series

XUM

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

SOUTH AFRICA

Rationing of Transport

On the occasion of the opening of the new station at Krugersdorp recently, the Minister of Railways and Harbours, Mr. F. C. Sturrock, announced that because of the tremendous demands which had to be met, transport would have to be rationed. This would not be done, however, by raising fares or rates, and the railway administration would play its part in keeping down the cost of living. Referring to the great increase in the cost of trucks, Mr. Sturrock pointed out that in 1929 the railways purchased 1,000 trucks, costing £485 each, whereas in 1941 the first thousand of two thousand trucks cost £1,050 each—an increase of 216·5 per cent.—and the second thousand £1,076 each—an increase of 221·8 per cent.

Rapid Expansion of Reef Traffic

In 1935 the railways inaugurated a great expansion scheme involving between £5,000,000 and £6,000,000, which it was thought would meet all requirements for the next 30 or 40 years. In the short space of the six intervening years the expansion had been so great that the new works were already overloaded. On the Reef there had been an increase in train-miles during this period from 5,500,000 to 8,500,000, or approximately 55 per cent. Johannesburg station, although recently completed, was now totally inadequate, and the railway authorities were considering the question of a main-line station at Kazerne. As the position improved, it was rapidly overtaken by the demand. In wartime this raised difficulties, but these demands had to be met. Mr. Sturrock expressed the hope that the public would realise the advantages of making greater use of the railways, in spite of the competition of the motorcar. With increasing parking difficulties, the public might find it more advantageous to visit Johannesburg by train.

CHILE

Concession for Railway Cancelled

In 1909 a concession was granted by the Government for the construction and working of the General Cruz-Pemuco Railway, and specified that the line should run to Camarico, 60 km. from General Cruz. It was built as far as Pemuco, 25 km., in the first instance, and later extended another 25 km. After Government grants of 125,000 and 112,000 pesos had been received for these constructions, the rails were dismantled beyond Pemuco without authority from the Government and have never been relaid. The present concessionaire has not made the payments stipulated in the concession, nor has he furnished the usual annual data required of all Chilean railways. Consequently, a Decree of the Ministry of Fomento, dated May 14, 1941, has declared the concession lapsed, and ordered the property to be sold by auction. Of the sum so realised, the 237,000 pesos received in the form of the two grants has to be returned to the Government and also $\frac{32}{56}$ of the proceeds, representing the proportion of the concession amortised.

State Railways

Locomotives and Rolling Stock

The State Railways now possess the following locomotives and rolling stock: 666 steam and 43 electric locomotives; 753 passenger cars; 150 railcars; 112 baggage vans; and 9,982 wagons. Of this stock, 7 locomotives, 3 passenger cars, 24 railcars, and 27 wagons have been acquired since 1937. These figures refer to the main system, and do not include the stock on small scattered Government-owned branch lines.

ARGENTINA

Civil Engineers' Meeting

At a meeting of the Buenos Aires Association of the Institution of Civil Engineers on June 26, Mr. J. Cross read a paper entitled "The Construction of the San Felipe Dam." The dam forms part of the irrigation works carried out by the Argentine Government in the Province of San Luis, and the lecturer took an active part in its construction. Mr. T. C. S. Haslam presided.

Reduced Aerial Travel

With the two-fold object of encouraging tourist movement to the Argentine northern provinces of Tucumán and Salta, noted winter holiday resorts, and of bringing aerial travel within the compass of all pockets, the Pan-American Grace Airways Inc. has made a reduction of 25 per cent. in its fares between Buenos Aires, Tucumán, and Salta from June 1 to November 30. As South American travellers are at present debarred from visiting Europe, the Argentine Provincial Governments are sponsoring a "See Argentina First" campaign, with a view to inducing those Argentines who have been accustomed to spend their vacations overseas to become better acquainted with the natural attractions of their own country. In this the railways and aerial companies are co-operating by offering specially-reduced travelling facilities.

The air service between Buenos Aires and the Provinces named is bi-weekly in each direction, leaving Buenos Aires on Mondays and Thursdays and returning on Tuesdays and Fridays. The time occupied on the trip from Buenos Aires to Tucumán (722 miles) is 6 hr., and to Salta (854 miles) 7 hr. 35 min. With this special winter season discount, the single fare from Buenos Aires to Tucumán has been reduced from $139 to $104, and to Salta from $195 to $146.

SPAIN

Railways under Construction

The present position of the railways now under construction by the State is reviewed in a paper read before the Madrid Association of Civil Engineers by Sr. Enrique Pastor, and published in *Ferrocarriles y Tranvias*. The following list is given of all the lines and the length of each :—

	km.
Madrid—Burgos	282
Baeza—Utiel	366
Utiel—Teruel	107
Teruel—Alcañiz	164
Alcañiz—Lerida	115
Cuenca—Utiel	113
Zamora—Orense—Corunna	464
Jerez—Almárgen	126
Totaná—La Pinilla	20
Puertollano—Córdoba	118
Talavera—Villanueva	189
Toledo—Vargas	18
Soria—Castejon	98
Alicante—Alcoy	65
Huelva—Ayamonte	50
Ferrol—Gijon	311
Valdezafan—San Carlos	120
Madrid—San Martin de Valdeiglesias ...	104
Lérida—St. Girons	57
Aguilas—Cartagena	44
Madrid Connecting Lines	45
Total	2,976 km. (1,849 miles)

The approved estimated cost of all the railways is given as 1,918,200,000 pesetas, of which 1,053,300,000 pesetas have already been spent, leaving 864,900,000 pesetas required for the completion of all the railways. With the rise in prices the author considers this last figure should be increased by at least one-third, raising it to 1,153,000,000 pesetas. To await relatively small budget appropriations would obviously mean deferring completion for many years, and a State loan should be raised, at say 4 per cent., as a first charge on receipts. The whole matter has acquired a greater importance since the recent decision of the Government to nationalise the broad-gauge railways.

SUDAN

Rolling Stock

On December 31 last the following rolling stock was in service on the Sudan Railway: 140 locomotives, of which 106 were main line engines, 31 steam shunting engines, 1 diesel, and 2 diesel-electric shunting engines; 202 coaching vehicles; and 2,461 goods vehicles. The delivery of four new 0-6-0 steam shunting engines is expected shortly.

SWEDEN

Further Electrification Extensions

Electric working over the northern main line of the Swedish State Railways was extended from Vännäs to Bastuträsk, 69 miles, in August. This raises the electrified route-length of the State Railways to approximately 2,524 miles. The completion of a further extension to Jörn, 20½ miles, is expected during September.

PASSENGER CLASSES

A review of the development of different classes and kinds of railway passenger accommodation, and their subsequent simplification

By CHARLES E. LEE

PASSENGER traffic on very early railways was considered as a side issue to the main business of providing a toll road for mineral wagons. On the Stockton & Darlington Railway, for example, the passenger trade was for eight years in the hands of private coach proprietors, who carried, on an average, 510 passengers a week between Stockton and Darlington, 74 between Shildon and Darlington, and 324 between Stockton and Middlesbrough. Even in the year ended June 30, 1833, the tolls paid by these coach proprietors for the use of the line amounted only to £611. The difficulty in regulating the traffic while private carriers were using the line caused the company in 1833 to buy out the coach proprietors and begin passenger carrying on its own account on October 1 of that year. For two reasons, therefore, early railway passenger traffic was based upon road practice, first because road coaches were the known means of conveyance, and secondly because coach proprietors actually provided the first passenger facilities by rail and simply paid their toll to the railway company instead of to the turnpike trust.

The Liverpool & Manchester Railway was the first line to undertake extensive passenger carrying on its own account, and the first to conduct the business in locomotive-hauled trains. It is therefore to the opening of this railway that we look for the beginnings of what may be termed "railway practice." Two classes of trains were provided, for an announcement entitled "Travelling by the Railway" was issued by the directors of the Liverpool & Manchester Railway on September 30, 1830, stating that the weekday train service from Monday, October 4, would comprise four trains of first class coaches at a fare of 7s. and two trains of second class coaches at 4s. On Sundays there were to be two trains of each class. In early months the passenger traffic was so heavy that it was not found possible to begin goods carrying until the middle of December, 1830.

A time bill of the company's dated January, 1831, and headed "Liverpool and Manchester Rail-Way" (a curious reversion to the hyphenated word) gave particulars of an almost identical train service, but showed the fares as 5s. first class and 3s. 6d. second class. It added the information "the journey is usually accomplished by the first class carriages in under two hours" and recorded that "the company have commenced carrying goods of all kinds on the rail-way."

By this time the trains called first class were in effect express, and those called second class the ones which stopped at all stations. The fare list provided for first and second class passengers (in the modern sense) but the terms were not directly related to the class of train and applied to the type of accommodation. The first class (express) trains were composed of enclosed compartment vehicles, some with four and some with six to the compartment, for first class passengers only. The ordinary first class fare entitled the passenger to occupy a six-seater at the Liverpool—Manchester scheduled single fare of 5s.; the four-seater compartments were a kind of super first class and the fare was 6s. The second class (stopping) trains conveyed both first and second class passengers, the former in "glass" coaches at the tariff fare of 5s., and the latter in open carriages for which the fare was 3s. 6d. Even these facilities failed to meet all the requirements of 1830 "class distinctions," and a timetable dated February 20, 1831, stated that "the want of a superior description of carriage, at a higher fare, having been frequently represented to the directors, thay have caused one four-inside coach, in each first class train, to be fitted up in a superior style, for which an extra charge of 2s. is made."

Introduction of Third Class

So far the class variations were elaborations of stage coach practice and it was not unusual to use the old coaching names of *inside* for closed carriages, and *outside* for open carriages. Then the Stockton & Darlington Railway on December 14, 1835, introduced the third class for local journeys in order to attract poor passengers who otherwise would have walked. They were conveyed in wagons without springs but furnished with seats, and the original fares were about one halfpenny a mile. By the time, therefore, that main-line passenger traffic began there was railway precedent for three classes, and for variations of fare even in the same class according to the speed of the train. Third class passengers were not usually admitted to any but the slowest trains, and there was thus normally only one scale of third class fares. The Grand Junction Railway provided the first example of long-distance main-line railway traffic, and, as it was opened throughout on one day—July 4, 1837, there was never the necessity for arranging local services at first and subsequently superimposing a main-line organisation. The company was closely related to the Liverpool & Manchester Railway and from the first planned its services and facilities in the light of that company's experience. Two types of trains were provided, and these were called respectively first class and mixed. The first class *trains* consisted only of mail carriages (a kind of super-first, carrying four passengers), and of first class carriages carrying six inside; these trains stopped only at the principal —sometimes called first class—stations. The mixed trains included both six-seater first class carriages and second class vehicles "affording complete protection from the weather, and differing only from the first class in having no lining, cushions, or divisions of the compartments." Both classes had seats on the roof for "those who prefer riding outside." Tickets for first class trains were numbered to correspond with the seats, but places by the mixed trains were not numbered.

On the London & Birmingham Railway, when the first section was opened, on July 20, 1837, "for the conveyance of passengers and parcels to and from London and Boxmoor, including the intermediate stations of Harrow and Watford," the company advertised the following accommodation on the trains:—

> First class coaches carry six passengers inside, and each seat is numbered.
>
> Second class coaches carrying eight passengers inside, and are covered, but without lining, cushions, or divisions, and the seats are not numbered.
>
> Third class coaches carry four passengers on each seat, and are without covering.

When the line was completed throughout there were two scales of fares for both first and second classes, thus: "4 inside carriage by day, or first class 6 inside by night" (32s. 6d.); "first class carriage, 6 inside, by day" (30s.); "second class carriage, closed, by night" (25s.); and "second class carriage, open, by day" (20s.). The figures in parentheses are single fares for the through journey between London and Birmingham. As on the Grand Junction Railway, the first class *trains* consisted only of mail carriages and of first class carriages carrying six inside. The L. & B.R. mixed trains seem to have been inferior to those on the northern railway, for they consisted of first class carriages carrying six, and of second class carriages open at the side and without linings, cushions, or divisions in the compartments. The night mail train included both first class carriages and second class vehicles "closed, and entirely protected from the weather." This somewhat complicated system of charging survived until 1844, and the same fares and distinctions are recorded in *Bradshaw* for July of that year; the third class position was then indicated by the note "the third class train takes passengers from London to Birmingham for 14s." Before the end of the year the carriage descriptions had disappeared from the fare list, and showed merely first, second, and third classes, with the addition of a first class

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express fare. Many of the previous "super" facilities had disappeared by the time the L.N.W.R. was formed in 1846, but one practice which survived for some years more was that of conveying private road carriages on flat trucks, and, at any rate as late as 1851 passengers still travelled in this way.

During the period when main-line railways were spreading throughout the country, the various forms of passenger accommodation tended rapidly to crystallise into the familiar first, second, and third, although only Spartan accommodation was available for the third class passenger, and that on comparatively few trains. The first Secretary of the Great Western Railway termed his third class passengers "the lowest order of travellers," but, in fact, a lower class existed in various parts of the country. The reluctance of railway companies in early years to provide comfort for third class travellers was not entirely a matter of class distinction but was largely the result of experience. In the course of some evidence given before a House of Lords Committee in July, 1867, Mr. Archibald Scott, the Manager of the London & South Western Railway, said that scarcely a day passed but his company had several carriages damaged by third class suburban passengers who cut the linings and fittings, broke the glasses, and destroyed the lamps. Mr. Myles Fenton, the Manager of the Metropolitan Railway, remarked "We have to carry so many mischievous people that we are obliged to remove all straps from the third class carriages; we have carriages continually cut." Nor were these characteristics only of the cockney for Mr. Seymour Clarke, General Manager of the Great Northern Railway, said of both London and Yorkshire local passengers, "These passengers, to whom no responsibility attaches, are very mischievous; they have no luggage, and there is nothing by which they can be identified; you would be astonished if you knew the amount of repairs we have to do resulting from pure mischief." During the summer of 1867, a guard was killed by being struck by a bridge while he was on the roof of a carriage, endeavouring to detect passengers damaging the vehicle.

The Fourth Class

The "lower-than-third" class to which reference has been made, was, in fact, called the fourth class. It existed as early as 1841 on the Manchester & Leeds Railway, which later became the Lancashire & Yorkshire Railway. Timetables of the Edinburgh & Glasgow Railway for April, 1845, show three trains each way with a fourth class, at fares which worked out at under ¾d. a mile. In 1848 the Great Northern Railway introduced a fourth class between Boston & Lincoln at ½d. a mile, to compete with the steamboat service on the Witham Navigation. The Eastern Counties Railway and the Norfolk Railway in August, 1853, advertised fourth class travel between Yarmouth and Norwich and London and, in the same month, the Great Western Railway advertised that "open excursion coaches" would be put on certain trains between Paddington and Windsor—actually a fourth class, though not so named.

"Parliamentary" Trains

The open third was already dying out by the time that it was officially killed by legislation in 1844. Section 6 of the Railway Regulation Act for 1844, for which William Ewart Gladstone was chiefly responsible, enacted that one cheap train a day must run at average speed of not less than 12 m.p.h. over every line in both directions, stopping at every station, and carrying third class passengers in covered carriages at a fare of not more than 1d. a mile. For a time these "Parliamentary" trains constituted the only third class provision, and it was not until twenty years later that the L.N.W.R. introduced—in August, 1864—two third class trains into and out of London, morning and evening respectively. Third class traffic soon became of ever-increasing importance, but the fares on semi-stopping trains were often higher than the "Parliamentary" maximum. On April 1, 1872, the Midland Railway introduced third class accommodation at "Parliamentary" fares on all its trains, and other companies necessarily followed suit in the main, although continuing to bar third class passengers from some expresses. As many trains to which third class passengers were then admitted did not comply with the "Parliamentary" requirement of stopping at all stations, passenger duty was payable. In consequence, from November 1, 1874, to January, 1884, the L.N.W.R. charged for such trains a third class fare of the "Parliamentary" 1d. a mile plus the 5 per cent. Government duty. Passenger duty on all fares up to 1d. a mile was repealed by the Cheap Trains Act of 1883, and the "Parliamentary" distinction disappeared on the L.N.W.R., and indeed on all railways excepting those few with a third class tariff higher than 1d. a mile.

Abolishing Second Class

In the abolition of second class accommodation* on a small scale, Scotland seems to have taken the lead, for *The Illustrated London News* of October 13, 1855, said: "Two Railway Classes instead of Three.—The Aberdeen Railway Company is just now trying an experiment worthy of notice. Instead of first, second, and third class carriages, they are now running first and third only, so doing away with the second class altogether; and they now carry passengers in the first class at what were formerly second class fares. The object is economy—by reducing the number of carriages running in each train, which will effect an important saving in wear and tear, and the cost of rolling stock. It is a clear gain to second class passengers, as they now travel first class for the same fare." A year earlier the Great North of Scotland Railway had opened its first section (on September 20, 1854) and had no second class carriages. At first the constituents of the Highland Railway followed the example of the Great North of Scotland in providing only two classes of carriage, first and third, but as soon as the direct line to Perth was opened (in 1863) second class bookings were introduced throughout the system and lasted for 30 years. It is alleged that a visit to Aberdeenshire in 1872 of the Chairman of the Midland Railway was the direct inspiration of the first large-scale abolition of second class.

This was undertaken by the Midland Railway on January 1, 1875, less than three years after its lead in popularising third class travel. Second class bookings on the joint Midland and Glasgow & South Western Anglo-Scottish services, were abolished at the same time. The new bold step was further than the other railways were prepared to go, and the policy was not imitated for many years. The Great Central Railway (then the Manchester, Sheffield & Lincolnshire Railway) was the next important company to abolish second class, which it did on April 1, 1891, with the exception of Manchester suburban traffic (which lasted until 1892); and the Great Eastern Railway discontinued second class on January 1, 1893, with the exception of boat trains and London suburban trains. On May 1, 1893, the Caledonian, Highland, North Eastern, and Great Northern Railways curtailed the second class, and such facilities disappeared from Anglo-Scottish bookings, but Lord Stalbridge was strongly opposed to their removal from the L.N.W.R., and second class accommodation lasted to the end of his chairmanship, in 1911. On January 1, 1912, second class accommodation was abolished on the L.N.W.R. (except between London and Harrow), and also on the Lancashire & Yorkshire, North Staffordshire, Maryport & Carlisle, and Cambrian Railways. The second class lasted on the L.N.W.R. and G.C.R. joint line between Manchester and Altrincham until January 1, 1923.

On some lines second class facilities were retained for a time on certain sections after the class had been generally abolished by the particular company, and other railways made the change gradually. On the Great Northern Railway, for example, the use of second class carriages was discontinued in the Lincolnshire, Nottinghamshire, and Derbyshire districts from May 1, 1885, and on main lines on May 1, 1893, but was retained for suburban traffic. The North Eastern Railway discontinued the issue of second class tickets from May 1, 1893, except locally in the Newcastle, Sunderland, and South Shields areas. Second class bookings were totally withdrawn on March 31, 1899. On the Great Western Railway, second class bookings were finally withdrawn in 1910, but as a preliminary step, the Paddington-Plymouth non-stop expresses were made first and third only in July, 1905. The new

* Actually, the London & Greenwich Railway abolished second class as early as January, 1842

Birmingham-Bristol trains of July, 1908, were first and third only. In October, 1908, second class was withdrawn from numerous branches in South Wales and the West Midlands. In May, 1909, second class disappeared altogether from South Wales, and in October from the West and South-West of England and the West Midlands. On the northern line it survived until July, 1910, and in the London suburban trains till the end of September. Second class accommodation continued to be provided on the L.N.W.R. and G.W.R. Joint Lines until 1912. It was retained until amalgamation on the Brecon & Merthyr, Rhymney, and Taff Vale, which now form part of the Great Western system.

The Furness Railway tried an ingenious system for a few weeks in 1897 when, on the withdrawal of second class tickets, the second class compartments were named " third class reserved " and supplementary tickets on a zone basis were issued for the passengers who used them. For the purposes of paying Government duty this additional zone charge (6d. for a zone of 30 miles) was regarded as making the fares liable to duty, and the experiment, which was not popular, was soon discontinued.

Both the Metropolitan and the District Railways had first, second, and third class in their steam-operated days, but the second class was discontinued during the electrification period; the London tube railways were always of the one-class variety, so that the London Passenger Transport Board inherited, on its formation in 1933, no second class accommodation. On the Whitechapel & Bow joint line, second class was abolished on October 31, 1904. On the District Railway, second class seasons ceased on April 1, 1905; second class bookings with the Hounslow line were discontinued on June 13, 1905; and all second class carriages were abolished on July 1, 1905.

The Metropolitan Railway abolished second class on the Baker Street to Uxbridge line on February 1, 1905; the issue of second class season tickets between Metropolitan and District stations ceased on March 31, 1905, and all second class tickets from the District to Metropolitan stations were discontinued on July 1, 1905; second class bookings with stations on the Praed Street to South Kensington and the Cannon Street to Mark Lane sections (and also *to* District stations) were abolished on September 24, 1905; and all second class bookings over the Metropolitan Railway (except on the Widened Lines, and to and from G.W.R. stations) ceased on December 17, 1906.

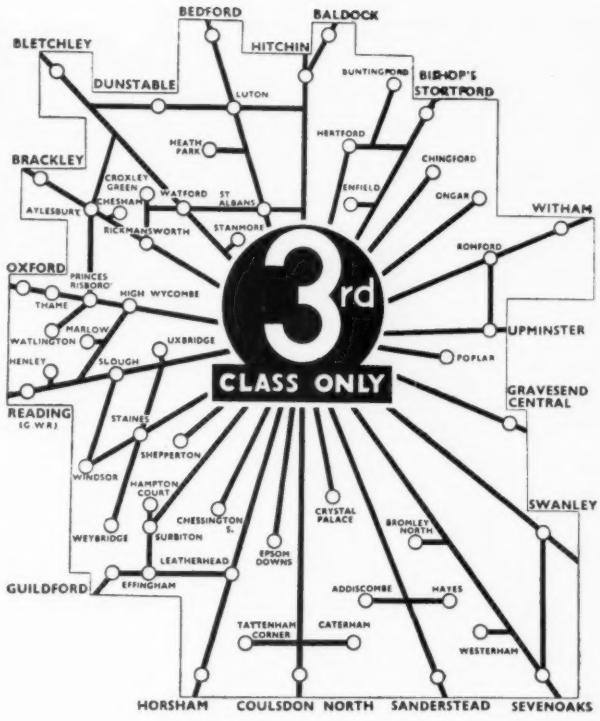
Abolition of second class on the constituents of the Southern Railway began on the L.B. & S.C.R. suburban services on June 1, 1911, and was completed for all services, except the Newhaven boat trains, on June 1, 1912. On the L.S.W.R. second class was abolished on July 22, 1918. Second class bookings were withdrawn from the trains on the South Eastern & Chatham section, except Continental trains, from the end of September, 1923.

Second class accommodation was abolished by the London & North Eastern Railway on January 1, 1938, on its London suburban services, working in the Great Eastern and Great Northern districts, a step taken preparatory to the electrification of certain of the lines involved. This represented the completion (with the exception of boat trains) of the process begun in 1875 by the old Midland Railway. The retention until the end of 1937 on the L.N.E.R. of second class facilities in the London area was very largely to provide a special class for season ticket holders.

Reductions in First Class Facilities

One class accommodation on urban railways and on branch lines has come into favour with the introduction of electric traction and railcars. The City & South London Railway, the first section of which was opened in 1890, made provision for only one class of passenger, and this practice has since been adopted by more recently built tube railways in the Metropolis. Similarly, the gradual introduction of railcars, particularly on branch lines, has resulted in the provision of one class accommodation on a number of branch lines, although often both first and third class has been retained on the trains on these branches maintaining the skeleton service which the railcars amplified.

Apart from such instances, however, there has been no movement towards the elimination of first class until the outbreak of the present war. The first step was taken by the



All trains which both begin and end their journeys within the area indicated above will be

3rd CLASS ONLY

from October 6th, 1941

London Passenger Transport Board as a result of traffic congestion during peak periods, which was intensified by the war. The vast majority of London Transport travellers pays third class fares, and it was found that the continuance of first class accommodation on the Metropolitan and the District Lines reduced the accommodation for the passengers as a whole and led to an unequal loading of trains. Therefore one class accommodation was extended on February 1, 1940, to all London Transport trains excepting those serving the Aylesbury and Watford Joint Lines.

It was these considerations of unequal loading which caused the Minister of Transport, on April 18, 1941, to adopt the policy that when accommodation in third class compartments has been fully occupied, and there has been room in first class compartments, persons holding third class tickets have been permitted to travel in the higher class; discretion in the matter has been left to the station staff concerned. Then, on September 11, the Minister of War Transport announced that from October 6 all trains which both begin and end their journeys within the London Passenger Transport Area (extended to certain points somewhat beyond the area for this purpose) will be third class only. This new arrangement, which came into force on Monday last, affects some 5,000 trains in the area indicated by the accompanying sketch map. First class accommodation continues to be provided in trains beginning from and ending their journeys outside the area, but making stops within it, and thus there are still first class services to quite a number of points well inside the area which are served by long-distance trains. The company affected most extensively is the Southern Railway, with its intensive suburban electric system, but the Southern Railway has no fewer than

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WITHDRAWAL
OF
FIRST CLASS
ON AND FROM
MONDAY, OCTOBER 6, 1941
All trains serving
this station will be
Third Class only
Holders of First Class season tickets expiring after 5th October will receive an allowance as from the date on which they surrender their tickets or exchange them for Third Class season tickets. Apply at Ticket Office as to the procedure

Above: London Transport station poster

Left: Standard R.E.C. poster for stations now without first class facilities

Right: Representative Southern Railway poster announcement

45 stations within the area which continue to be served by trains with first class accommodation. On the L.M.S.R. only third class accommodation is now provided on the electric trains between Euston and Watford and on the following branch lines :—

Broad Street—Richmond
Dalston—Poplar
Harrow—Stanmore
Watford Junction—Croxley Green—Rickmansworth
Watford Junction—St. Albans (Abbey)
Cheddington—Aylesbury
Leighton Buzzard—Dunstable—Luton

The L.N.E.R. is affected more extensively with its numerous Great Northern and Great Eastern section suburban lines, some of which will have no first class accommodation as they are not served by main-line trains. So far as concerns the Great Western Railway the new arrangement embraces the following lines, but main-line trains serving these areas continue to convey first and third class passengers :—

Paddington to West Drayton, Slough, Maidenhead, and Reading, including all intermediate branch lines.

Paddington to Greenford, Ruislip & Ickenham, Gerrards Cross, High Wycombe, Princes Risborough, and intermediately ; also to Aylesbury and Oxford (*via* Thame) and Princes Risborough to Bicester and Banbury.

Certain trains between Reading, Didcot, Swindon, Abingdon, Oxford, Witney, Worcester, Banbury, Leamington Spa, and Birmingham ; also Reading to Newbury, and Savernake and Basingstoke.

On this page is reproduced a representative selection of posters issued in connection with the new arrangements.

ON & FROM OCTOBER 6, 1941
TRAINS SERVING
THIS STATION
WILL BE
3rd
CLASS ONLY
EXCEPT TRAINS SHOWN BELOW
WHICH WILL BE FIRST & THIRD
TO LONDON (Marylebone)
FROM LONDON (Marylebone)
Holders of first class season tickets expiring after October 5 will receive an allowance as from the date on which they surrender their tickets or exchange them for third class season tickets. Apply at Ticket Office as to the procedure
GWR
LNER

L M S
WITHDRAWAL OF FIRST CLASS ACCOMMODATION
FROM LONDON SUBURBAN TRAINS
On and from the 6th October, 1941, all electric trains from LONDON (Euston), to Harrow and Watford Junc., and the steam trains detailed below will have THIRD CLASS ACCOMMODATION only :—
WEEKDAYS
Train
DESTINATION
SUNDAYS
The trains on the following Branch Lines will also have THIRD CLASS ACCOMMODATION only :—
Broad Street—Richmond
Harrow and Stanmore
Watford Junction—Croxley Green and Rickmansworth
Watford Junction—St. Albans (Abbey)
Cheddington—Aylesbury
Leighton Buzzard—Dunstable and Luton
Dalston—Poplar
T. E. ARGILE,
Chief Commercial Manager.

Representative posters announcing the limitation of first class accommodation in the London area from Monday last

POPPET-VALVE TESTS IN THE UNITED STATES

With the Franklin steam distribution system a rebuilt " K-4s " class Pacific of the Pennsylvania Railroad has developed over 4,000 i.h.p. at 100 m.p.h. with a steam consumption 30 per cent. less than a similar piston-valve engine; it has also hauled a 900-ton train for 103 miles at an average of 83 m.p.h.

SOME remarkable results* have been obtained by the application, to one of the well-known Pennsylvania Railroad " K-4s " class Pacifics, of the Franklin system of steam distribution, which includes poppet-valves. This large class of 425 locomotives, the first of which appeared in 1914, has for the past twenty years been responsible for all the principal main-line duties of the Pennsylvania, other than those electrically operated, and though, in comparison with many modern American express locomotives, of relatively moderate dimensions, these engines have done some notable work, especially over the high-speed stretch of the New York—Chicago main line between Crestline, Fort Wayne, and Chicago, a distance of 280 miles which is run without change of locomotive. They have hitherto been limited to maximum loads of 870 tons (of 2,240 lb.) on the fast schedules of the Pennsylvania, which include five runs timed at over 70 m.p.h. from start to stop, and many others scheduled at between 60 and 70 m.p.h.

The alterations to No. 5399, the poppet-valve engine, included the provision of new cylinders, with cam-operated poppet-valves; there are four 6-in. dia. intake valves and four 7-in. dia. exhaust valves to each cylinder, all with a maximum lift of 1 in. The percentage of steam-chest volume (including the steam pipe) to cylinder volume was increased from 36 to 73 per cent. as compared with the original " K-4s " piston-valve locomotives. As thus altered, the leading dimensions of No. 5399 are:—

Cylinders, dia.	27 in.
,, stroke	28 in.
Driving wheels, dia.	6 ft. 8 in.
Heating surface, tubes	3,375 sq. ft.
,, ,, firebox	311 sq. ft.
,, ,, total evaporative	3,686 sq. ft.
Superheating surface	1,205 sq. ft.
Combined heating surfaces	4,891 sq. ft.
Grate area	68·7 sq. ft.
Working pressure, per sq. in.	205 lb.
Tractive effort (at 85 per cent. boiler pressure)	44,460 lb.
Adhesion weight	93 tons.
Weight of engine (in working order)	148 tons.

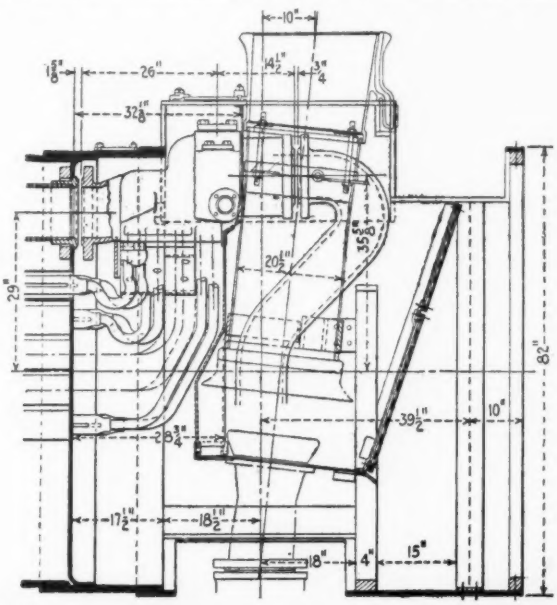
Tests on the Line

In the road tests the poppet-valve engine found no difficulty in handling expresses that are normally double-headed. One special train weighing 1,025 tons (of 2,240 lb.) tare, and probably 1,075 tons gross, was hauled over the 148·0 miles from Chicago to Fort Wayne in 133 min., at 66·8 m.p.h., and from Fort Wayne to Crestline, 131·7 miles, in 120 min., at 65·8 m.p.h., both runs including service slacks, and the second one a stop at the overhead coaling plant near Adams for replenishment of the tender coal supply. The Chicago—Fort Wayne time equalled the schedule of the Broadway Limited, and that from Fort Wayne to Crestline beat it by 5 min., despite the fact that the Broadway is the fastest train on the service, and No. 5399 had a load 155 tons in excess of the normal limit for a " K-4s " Pacific. On November 5 the poppet-valve engine took over at Crestline the General sleeping car express, made up to 816 tare tons (probably 860 gross tons), and left Crestline 9 min. late, but despite 2 min. overtime at Fort Wayne passed Liverpool, at the west end of the Fort Wayne Division, 11 min. early, having thus gained 22 min. The 131·7 miles from Crestline to Fort Wayne, with several slacks, took 118 min. (67·0 m.p.h.), and from here No. 5399 passed Liverpool, 117·8 miles, in 91 min., 78·8 miles from Warsaw onwards being run at an average of 84·4 m.p.h. On a test run with a 15-car train of 891 tons (900 tons gross), 103 miles between passing Valparaiso and shutting off steam for Fort Wayne were covered at an average of 83·0 m.p.h., cut-offs varying from 28 to 50 per cent., and the temperature in the steam-pipe ranging from 651° to 685° F. In these tests the maximum d.b.h.p. recorded was 2,980 at between 60 and 65 m.p.h., and between 50 and 75 m.p.h, the h.p. output was continuously over 2,800.

Altoona Plant Tests

It had become clear during the period of testing in traffic that speedy steam delivery to the cylinders, made possible by the new valve system, required a complimentary increase through the superheater. Therefore after 57,000 miles of running between Crestline and Chicago, on ordinary expresses and special test runs, No. 5399 was fitted with a new superheater of the same type " A," but having single-pass units the pipes of which were bent in the form of a sine wave. Each unit consists of two loops in parallel thus increasing the cross sectional area to 91·0 sq. in. compared with 45·5 sq. in. for the original superheater. The new superheating surface was 1,277 sq. ft., an increase of 6 per cent. due to longer units and the use of sine-waved pipes. The weight of the engine was increased by 4 tons. Other changes included the provision of a larger header fitted with a multiple-valve throttle. As a result of these modifications and the fitting of larger steam pipes, the cross-sectional area of the steam pipe is 70·9 against 56·7 sq. in., and of each of the smokebox branch pipes 50·2 sq. in. compared with the previous 28·27 sq. in. Thus modified, the locomotive was then transferred to the Altoona locomotive testing plant of the Pennsylvania Company for an exhaustive series of trials.

The 56 test runs made on the Altoona plant were divided into three series, each with a different size exhaust nozzle, namely 51·2, 48·7, and 45·7 sq. in. The largest was found to be best. The results obtained are shown by the graph (Fig. 1), from which it will be seen that between firing rates of from 60 to about 250 lb. of coal per sq. ft. of grate per hr., the steam temperature varied from 560° F. to a maximum of 640°. The temperature was a little over 600° at the higher rate of firing. The actual amount of superheat ranged between the limits of 150° and a maximum of rather



Arrangement of front-end to accommodate the type ASW superheater on locomotive No. 5399

* For details of which we are indebted to our American contemporary, the *Railway Age*

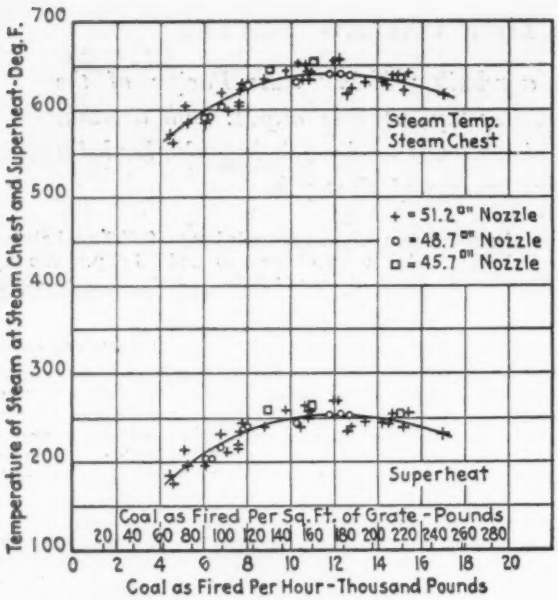

Temperature of Steam at Steam Chest and Superheat - Deg. F.
700
600
500
400
300
200
100
Steam Temp. Steam Chest
+ = 51.2" Nozzle
o = 48.7" Nozzle
□ = 45.7" Nozzle
Superheat
Coal as Fired Per Sq. Ft. of Grate - Pounds
20 40 60 80 100 120 140 160 180 200 220 240 260 280
0 2 4 6 8 10 12 14 16 18 20
Coal as Fired Per Hour - Thousand Pounds

Fig. 1—Steam temperatures at steam-chest and superheater of locomotive No. 5399 in relation to lb. of coal fired

more than 250° F. At the higher rates of steam flow the following figures indicate the performance of the superheating equipment:—

Steam flow per hr., lb.	76,280	73,934	69,430	47,776
Pressure drop between boiler and steam-chests, lb. per sq. in.	10·8	9·6	10·5	7·7
Superheat of steam in steam pipes, °F. ...	233	254	246	221
I.h.p.	4,099	4,114	4,267	3,191
Speed, r.p.m.	423	240	320	360
Speed, m.p.h.	100	58·8	75·8	85·2
Cut-off, per cent.	33	49	39	22

The i.h.p. developed on the plant is shown in Fig. 2, the point most worthy of note being the relative flatness of the curve at the higher rates of speed. Thus between 65 and 90 m.p.h. the output is almost constant at about 4,250 h.p., a tribute to the effectiveness of the steps taken to improve the steam flow from the boiler through the superheater, the cylinders, and the exhaust. Compared with a "K4s" of conventional design with 12-in. piston valves and the normal type "A" superheater, the power developed at a steam flow of 70,000 lb. per hr. is just over 4,000 i.h.p. at 100 m.p.h., as against 2,700 for the original engine; and at 65 m.p.h. the powers are 4,200 and 3,500 respectively, showing how well the output is sustained at high speeds. How the ratio of the mean effective pressure to the steamchest pressure varies with the speed and rate of admission is shown in Fig. 3. It will be seen that at 100 m.p.h. maximum power was attained at 33 per cent. cut-off. The steam consumption of the engines when the rate of steam flow was 70,000 lb. per hr. is shown in Fig. 4, which clearly demonstrates the superior performance of the modified locomotive. In the same manner as the cylinder h.p. remained almost constant through the higher range of speed, so also does the steam rate per unit of power output. The steam rates under differing running conditions on the test plant were: 18·6 lb. at maximum speed (100 m.p.h.), maximum boiler output and 4,099 i.h.p.; and 15 lb. at maximum economy, corresponding to 22 per cent. cut-off, 85 m.p.h., and 3,191 i.h.p.

The small proportion of the power output needed to drive the valves and motion may be measured by the fact that when the drawbar pull increased to 40,000 lb, the machine efficiency of the engine increased to 95 per cent.

During the road tests, which extended over most of a year, the poppet-valve gear gave reliable service. On two occasions only was any delay caused *en route* by failures,

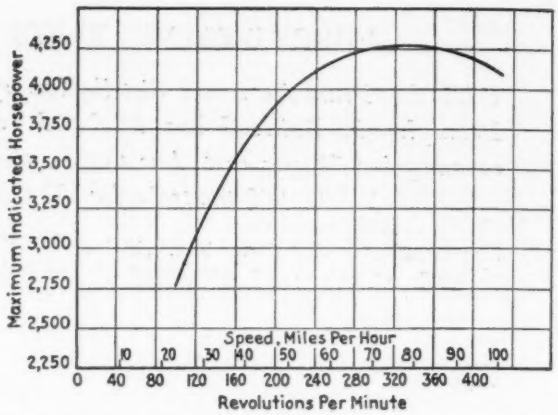


Fig. 2—Diagram showing the maximum i.h.p. developed by locomotive No. 5399

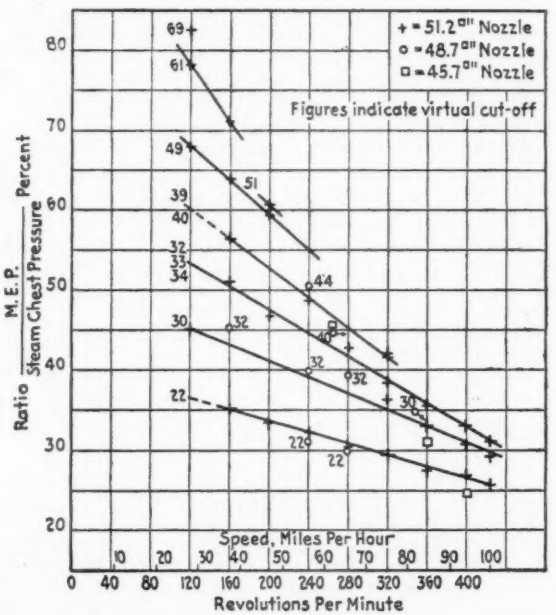


Fig. 3—Diagram showing variation in ratio of m.e.p. to steam-chest pressure with speed for each cut-off at which the locomotive was operated

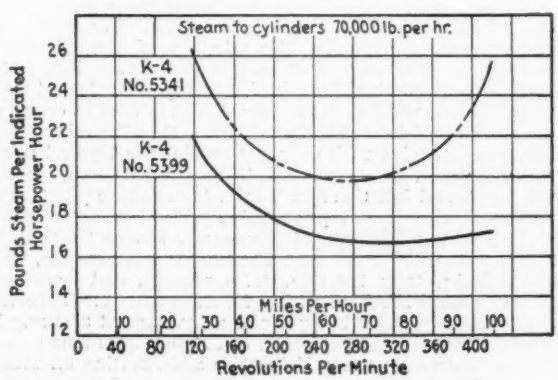
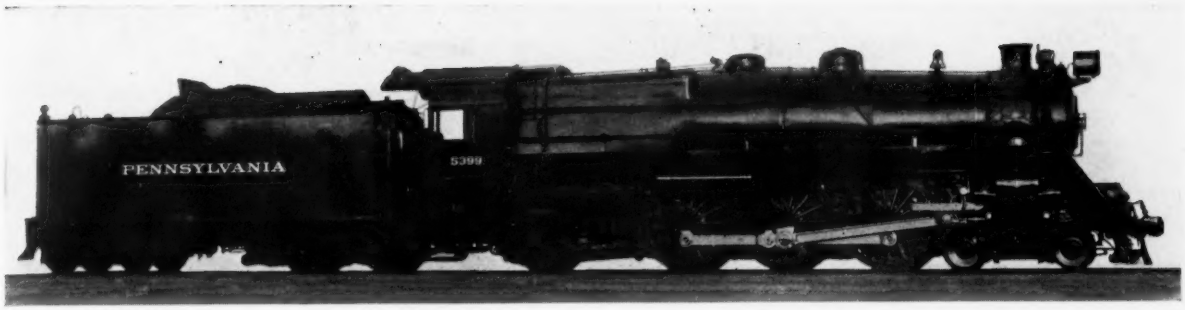


Fig. 4—Water rates of locomotives Nos. 5399 and 5341 (piston valves) for a uniform cylinder consumption of 70,000 lb. of steam an hour



Poppet-valve locomotive No. 5399 of the "K-4S" class, Pennsylvania Railroad before application of new superheater

one of which was a stuck inlet valve, and the other a broken valve-gear-box drive pin; on another occasion a valve stuck, but without causing delay. For two short periods the engine was out of service for repairs, in one instance to the cam-box oil-pump, and in the other to one of the rocker shafts transmitting the drive from the crosshead to the valve-gear box. To obtain a better quality of valve, these are now machined from alloy steel forgings instead of from ordinary rolled steel bar; but the wear of valves, cam surfaces, and link and link block surfaces has been negligibly small. It is significant that this promising experiment has been made by the Pennsylvania Railroad, which hitherto has tended to conservatism in locomotive matters, and in view of the excellent results obtained, it may be expected that more attention than hitherto will be paid by American railways to possibilities of poppet-valves on locomotives. Another point of note is that power outputs on this scale, at very high speeds, should have been obtained with a locomotive of which the basic design dates back 27 years.

Aims of the Franklin system

Before application to a locomotive, the Franklin system of steam distribution had been developed over a period of more than two years on a test plant specially built by the Franklin Railway Supply Co. Inc., which had taken over for the U.S.A. and Canada the patent rights and engineering development of the Société d'Exploitation des Procédés Dabeg of Paris, and the Associated Locomotive Equipment Limited of London. To meet the increasing demand for the haulage of heavy trains at higher speeds, the company set out to evolve an entirely new system of steam distribution, aimed at eliminating the restrictions which exist in such conditions with the conventional piston-valve locomotive. The objectives of this research programme were as follow:—

Increase of mean effective pressure to be obtained by a separation of the valve events so that the admission and cut-off, release and compression would be controlled independently, at the same time providing large passage areas for both inlet and exhaust and improved steam flow.

Increase in cylinder economy to be obtained by a reduced clearance volume, the independent control of the valve events, and by a substantial decrease in back pressure.

Increased mechanical efficiency to be obtained by reduced weight of moving masses, reduced friction and elimination of carbonisation.

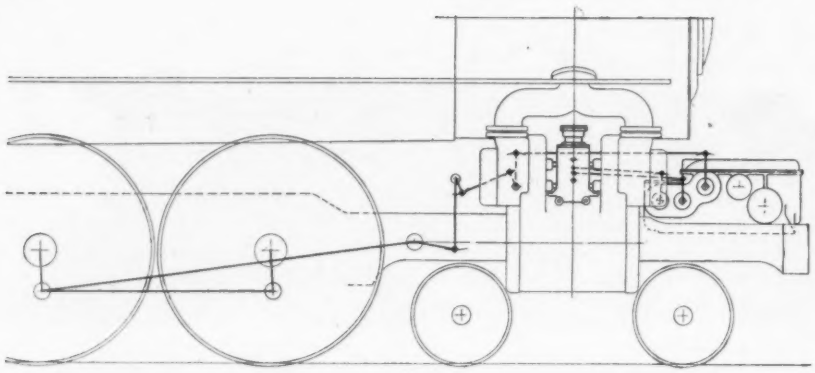
Reduced maintenance to be obtained by the use of lightweight parts, the entire mechanism, driven from the crossheads, to be fitted with anti-friction bearings, running in an oil bath.

Absolutely fixed valve events at all speeds and all cut-offs.

The Association of American Railroads had during this same period, but quite independently, come to realise the limitations of existing locomotive design. A series of test runs was conducted in 1938 to determine the drawbar horsepower required to haul a 1,000-ton train at a constant speed of 100 m.p.h. on level straight track. The results were summarised in THE RAILWAY GAZETTE of August 4, 1939 (p. 171), and it may be useful to record the following extract from the

Locomotive No. 5399 as finally running with the Franklin poppet-valve system of steam distribution and improved superheater

XUM



Application of valve-gear box in front cylinders for Franklin poppet valves, as on Pennsylvania locomotive

No. 5399 of the "K-4S" Pacific type. The drive is solely off the crosshead

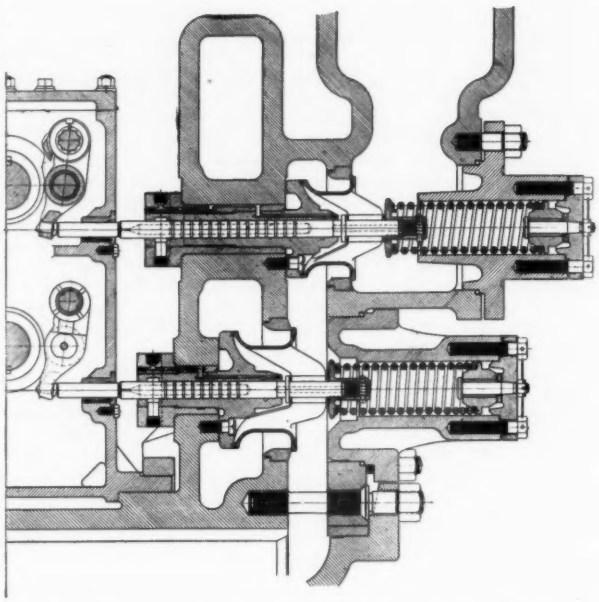
report of the Mechanical Division of the A.A.R. on these tests:—

Nothing developed in the tests to indicate that any of the locomotives had reached the limit of boiler capacity. Therefore, the question of sustained power at high speeds becomes a question of mean effective pressure in the cylinders. It is evident that if the mean effective pressure remains constant as the speed increases, the power of the locomotives will increase with speed; but since the mean effective pressure for any given cycle of valve events necessarily decreases with the speed, the ideal locomotive must have port openings so large and so accurately timed that this decrease will be kept as low as possible until the maximum speed has been reached. Obviously, the mean effective pressure cannot be successfully sustained by lengthening the cut-off; on the other hand, high speeds should be accompanied by shortened cut-off. The factors of design which have a direct bearing on maximum mean effective pressure are as follow:—

1. High boiler pressure.
2. Minimum pressure drop from boiler to steamchest.
3. Large steamchest volume.
4. Maximum valve port openings.
5. Minimum back pressure in exhaust passages.

Other factors that affect the power delivered to the drawbar are machinery friction, rolling resistance, and head end air resistance.

The valve opening curves for the Franklin poppet valves, as compared with a long-travel 14-in. piston valve, show that the admission opening is increased 50, 66, 80, and 82 per cent., respectively, for 15, 25, 35, and 50 per cent. cut-off positions, and the exhaust area has been increased 31 per cent. The expansion line has nearly 100 per cent. greater length at cut-offs below 25 per cent. It would seem, therefore, that the Franklin system of steam distribution comes very near to achieving the ideal set forth in the A.A.R. report.



Franklin poppet valves and related parts in cylinder

The old engine sheds at Wellington, New Zealand Government Railways, showing on the extreme right a "K" class 4-8-4 locomotive (No. 916), and next to it, in the foreground, one of the numerous 4-6-4 tank locomotives. These sheds were demolished in connection with the rebuilding of the station and layout at Wellington which was described in THE RAILWAY GAZETTE of November 10, 1933, November 1, 1935, and October 1, 1937

PETROLEUM TRANSPORT IN ARGENTINA

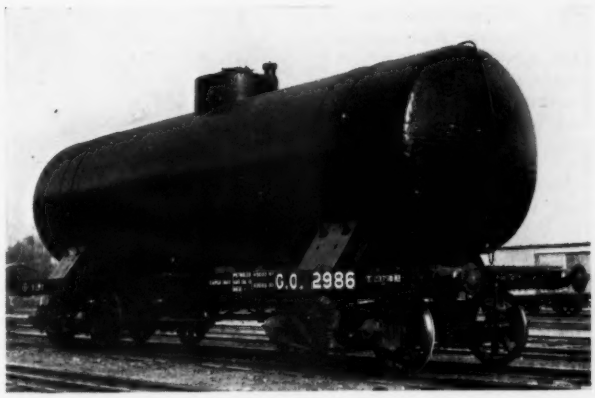
New oil tank wagons of the Buenos Ayres & Pacific Railway for conveying crude petroleum from the Mendoza oilfields to the refineries

TO meet the demands for additional rolling stock created by the increased petroleum production in the Province of Mendoza, the Buenos Ayres & Pacific Railway Company has recently acquired 300 tank wagons of the type shown in the accompanying illustrations, for the transport of crude petroleum from the Mendoza oilfields to the refinery at San Lorenzo in the Province of Santa Fé. These wagons, which were designed by Mr. R. E. Kimberley, the company's Chief Mechanical Engineer, are specially constructed for the transport of crude petroleum, fuel oil, petrol, and other by-products, and include a number contributed by the Central Argentine Railway, in virtue of that company's participation in the Mendoza—San Lorenzo petroleum traffic.

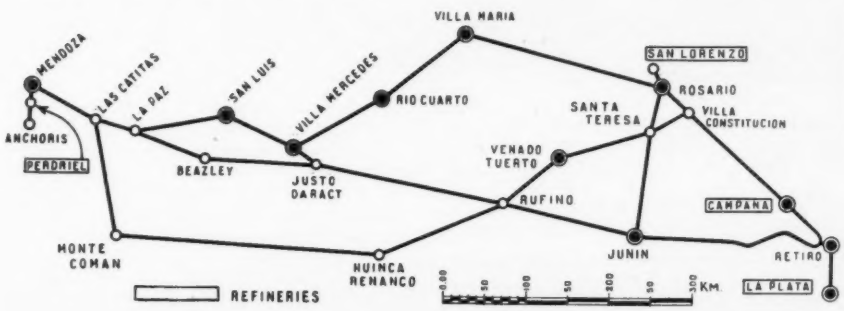
Generally, a train is made up of 22 tank wagons each with a capacity of 41 tons, giving a total capacity of, approximately, 900 tons a train. Thus, with two trains a day, the aggregate monthly capacity may be put at 54,000 tons. Up to the present, however, the maximum quantity transported in a single month (November, 1940) has been 34,000 tons. With the number of wagons at present available, it is estimated that an aggregate of 600,000 tons of petroleum a year could be handled; but as this output has not so far been reached, all the wagons are not yet in use. In the event of the railway being called upon to transport a million tons a year, as the result of increased production by the Mendoza oilfields—a figure which it is expected will eventually be reached—it is estimated that an additional 190 wagons would be sufficient to handle this tonnage. For purposes of comparison, it may be mentioned that during the last financial year, the total goods traffic carried by the B.A.P.R. was 4,200,000 tons, including 1,700,000 tons of general merchandise, 920,000 tons of cereals, 620,000 tons of wine, 410,000 tons of livestock, and 550,000 tons of railway materials.

The accompanying diagram shows the three combined routes by which the petroleum is transported over the B.A.P.R. and C.A.R. from Mendoza to the refineries at San Lorenzo and Campana. The time occupied on the journey by any of these routes is, approximately, 48 hr.

The tanks are mounted on bogies formerly used for other purposes, and were built by the Talleres Metalúrgicos San Martin; the British Structural Steel Company; the Establecimientos Industriales Febo, and the S.I.A.M. (Di Tella) Company. The assembly work was carried out in the railway company's workshops. The number of wagons at present in daily service is 184.



A 41-ton oil tank wagon



Left: Diagram showing the various routes by which petroleum is conveyed over the Buenos Ayres & Pacific and the Central Argentine Railways from Mendoza to the refineries at San Lorenzo and Campana

Below: Train of oil tank wagons and bogie goods brake van

AN OLD YORKSHIRE MINING RAILWAY

Some timber railway remains recently discovered by Mr. T. H. Sanders in an old lead mine

As a sequel to the brief article, with illustration, published at page 113 of our August 1 issue, which dealt with the picture of an early wooden railway shown on a Flemish painting of 1544, Mr. T. H. Sanders now sends us a few remarks on the remains of an old line he has discovered in Yorkshire. An erudite paper on the subject of " Lead Mining and Smelting in West Yorkshire " was presented to the Newcomen Society by Arthur Raistrick, Ph.D., M.Sc., in 1926, from which some of these notes have been taken, with acknowledgements to the author. He states that the art of lead mining had been practised in this area since the time of the Romans, and three pigs of lead were actually found some 150 years ago in the district which bore the inscriptions of various Roman emperors. The one found nearest the district now under consideration was discovered near Grassington (10 miles from Buckden) inscribed with the name of Trajan, and a date corresponding to A.D. 98. During the fifteenth and sixteenth centuries, numerous German merchant-adventurers had concessions to exploit the district, and their methods resulted in the resurrection of lead-mining which had become somewhat reduced during the previous centuries. Their tools and equipment came from Augsburg, *via* Newcastle-on-Tyne, to Keswick, whence they were apparently distributed to the working areas. Barnard Castle became meanwhile a marketing centre for the traffic. Dr. Raistrick states that the mine at Alston, begun in 1776, was the first in the North to be equipped with iron rails and bogies, which were used in the construction. He also states " prior to this, and in Yorkshire for nearly half-a-century later, the tram rails in the mines were of elm, larch, or oak, and indeed such rails were to be seen as recently as 1912 in the levels of the Merryfield sett, Nidderdale."

The mine at Buckden receives no special mention, as there seem to have been scores of workings in the area, some by shaft and some by what even today in Yorkshire is called a " day-hole," in other words a tunnel with gradual inclination straight into the hill-side. The village of Buckden is shown in Fig. 1, and the mine itself is at the top of the " ghyll " or ravine defined on the left of the picture. This ravine rises sharply in the direction of the top of Buckden Pike, shown as 2,030 ft. above sea level. The day-hole, which practically coincides with the commencement of the rapid stream with numerous water-falls which rushes through the ravine, is 1,800 ft. above sea level, and a sketch of the local topography is given in Fig. 2.

Mr. Sanders informs us that, on the occasion of a recent visit here, he endeavoured to trace any railway ruins on the

Fig. 1—The village of Buckden, and Buckden Pike

workings, which have been closed for many decades, and on which all the old dry-wall buildings have long since collapsed. He was fortunate in discovering the remains of about three feet of 15-in. gauge track, with a wagon stop, a sketch of which is given in Fig. 3. Traces still remain of the positions of other track, but nothing else was found, neither did anything exist of the " bogies " or " trams " which had been employed. The day-hole entrance is arched and just large enough for the 15-in. track; in fact, it is almost exactly similar to the tunnel mouth shown on the Flemish painting. The ore was smelted on the workings, and the lead taken on pony-back down the hills, frequently by zig-zag tracks, to the valley—in this case Wharfdale. Traces of the old pony roads still exist, and it would seem that the lead from Buckden was taken down to the village of Starbottom, some three miles from the mine. As an additional matter of interest, it may be recorded that the whole district also abounds with the straight Roman roads, climbing the hillsides to avoid the valley ambuscades of the original inhabitants.

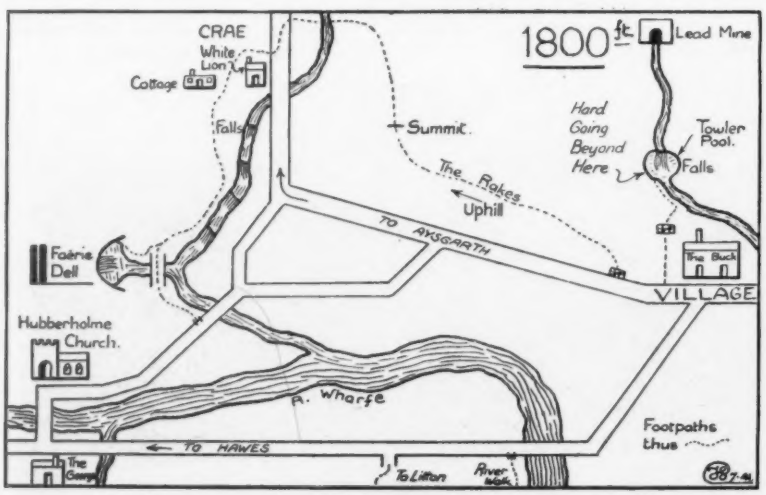


Fig. 2 (left)—Sketch by Mr. T. H. Sanders of the local topography of the Buckden lead mine

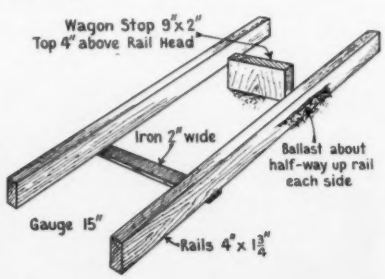
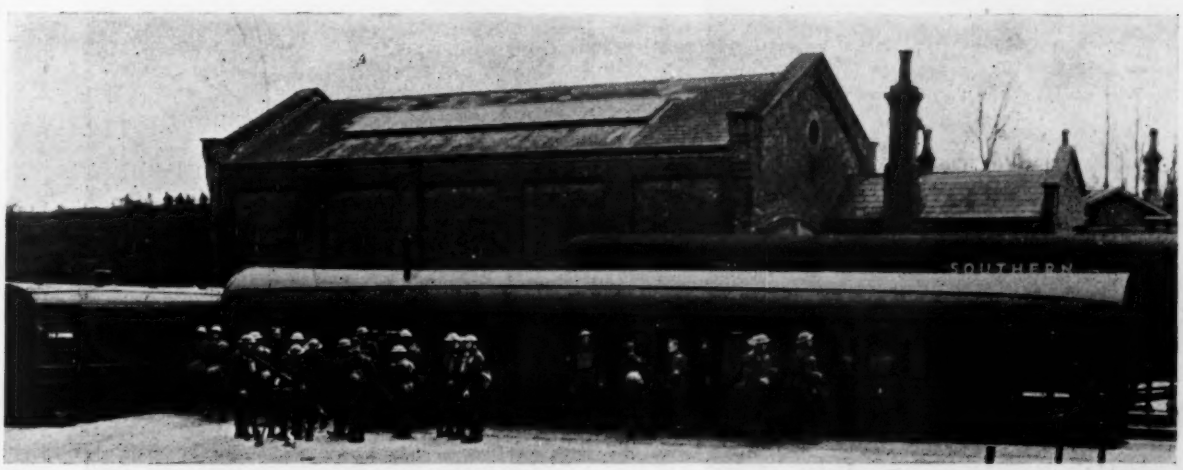


Fig. 3 (above)—Sketch of wooden track at Buckden, Yorkshire

Railways and the War—87

One of the armoured trains which are being used by the Russian Army. These mobile forts are reported to have been active in the fighting before Leningrad



Southern Railway Home Guard at the week-end training camp in the territory served by the company (*see page* 365)

XUM

Railway Tour by The Minister of War Transport

Lord Leathers, Minister of War Transport, operating signals in a box near London

The Minister and Colonel Eric Gore-Browne, Deputy-Chairman of the Southern Railway Company, chatting with a woman goods porter

The Minister of War Transport, accompanied by railway officers, recently made a railway tour in the South of England (see page 365). *The Minister is shown (left) with P.C. Brereton, a railway policeman who has been awarded the British Empire Medal for bravery during an enemy air attack; (centre) with Mr. E. J. Missenden, General Manager, Southern Railway, watching platelayers laying a new section in a marshalling yard; and (right) meeting one of the woman painters now employed by the railway companies*

RAILWAY NEWS SECTION

PERSONAL

G.W.R. Assistant General Manager

The directors of the Great Western Railway have appointed Mr. K. W. C. Grand as Assistant General Manager.

G.W.R. Appointments

The directors have also authorised the following appointments:—

Goods Department

Mr. F. W. Lampitt, Principal Assistant to the Chief Goods Manager, on retirement of Mr. H. W. Payne.

Mr. G. Cornish, General Assistant to the Chief Goods Manager, Paddington.

Mr. D Blee, District Goods Manager, Birmingham, *vice* Mr. G. Cornish.

Docks Department

Mr. L. E. Ford, Assistant Chief Docks Manager, Cardiff.

Mr. D. G. Hoppins, Dock Manager, Cardiff & Penarth Docks, on retirement of Mr. H. B. Smith.

Engineering Department

Mr. E. C. Cookson, Assistant to the Chief Engineer, Paddington.

Mr. T. T. Mead, Divisional Engineer, Newport, *vice* Mr. E. C. Cookson.

Staff & Establishment Office

Mr. R. Burgoyne, Assistant Chief Staff & Establishment Officer.

L.N.E.R. Appointments

Mr. A. E. H. Brown, District Superintendent, Sunderland, has been appointed District Superintendent, Newcastle, in succession to Mr. W. A. Fiddian, who will be retiring shortly.

Mr. J. E. M. Roberts, Assistant District Superintendent, York, has been appointed to act as District Superintendent, Sunderland, in succession to Mr. A. E. H. Brown.

Arrangements have been completed for the meeting between the Trades Union Congress and the All-Union Central Council of Trade Unions of the U.S.S.R. The T.U.C. delegates are: Mr. F. Wolstencroft, Chairman; Mr. W. P. Allen, General Secretary, Associated Society of Locomotive Engineers & Firemen; Mr. A. Conley, General Secretary, National Union of Tailors & Garment Makers; Mr. H. N. Harrison, National Officer, National Union of General & Municipal Workers; and Sir Walter Citrine, General Secretary of the T.U.C.

Mr. K. W. C. Grand, who has been appointed Assistant General Manager, Great Western Railway, was educated at Rugby, and joined the railway service in 1919 at Park Royal goods station. After gaining experience there, at Ealing Broadway, and in the Divisional Superintendent's Office at Paddington, he was transferred in 1922 to the General Manager's Office. In March, 1926, he was appointed General Agent for the U.S.A. and Canada with office in New York, and on his return to England became, in May, 1929, Assistant Publicity Agent. On the expiration of the company's trade advertising agreement with its contractors, Mr. Grand was appointed Commercial Advertising Agent, in 1930, to organise the control of the department newly created to deal with this branch of advertising. In January, 1932, he took over also the charge of the Publicity Department with the title of Commercial Advertising and Publicity Agent. In 1933 he was associated with the late Squadron Leader S. B. Collett (Assistant Secretary, G.W.R.) in the organisation of the first railway air service, inaugurated by the G.W.R. between Plymouth and Cardiff, and subsequently extended to Birmingham. He was appointed Commercial Assistant to the Superintendent of the Line in 1933 and a year later became General Assistant. In March, 1936, Mr. Grand was appointed Divisional Superintendent at Swansea, returning to Paddington in 1937 as an Assistant to the General Manager. In 1939 he was made Principal Assistant to the General Manager, which position he relinquishes to take up his present appointment. Mr. Grand is a director of Railway Air Services Limited, Great Western & Southern Air Lines Limited, Guernsey Airways Limited, Jersey Airways Limited, and Channel Islands Airways Limited.

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Mr. K. W. C. Grand

Appointed Assistant General Manager, Great Western Railway

Mr. D. B. Colyer, Vice-President, Trans-Canada Air Lines, is resigning after four years of service spent in organising and developing Canada's national air service. Mr. C. T. Larson, General Superintendent, succeeds Mr. Colyer.

The Ministry of War Transport announced on September 27 the resignation of Sir Edward Beatty, G.B.E., as Canadian Representative of the Ministry and of Mr. George Stephen, Assistant Representative. In accepting these resignations Lord Leathers has expressed to Sir Edward Beatty and Mr. Stephen his great appreciation of and thanks for the most valuable and arduous services which they have rendered since the outbreak of war. The Government is indebted to them for the creation and development of the organisation upon which the Ministry of Shipping and later the Ministry of War Transport so largely depended for the execution of its purposes in Canada. Sir Edward Beatty's generous offer that the services and co-operation of the C.P.R. should continue to be at the disposal of the Ministry, has been gladly accepted. The extraordinary growth of the Ministry's activities in the past year and the vast expansion of shipping planned for the future have made desirable the creation of a Board of Directors which Sir Edward Beatty and the Minister jointly agree should be composed of men able to devote their entire time and energy to war transport problems. The Minister, after consulting the Canadian Government, has appointed Mr. G. D. Huband to succeed Sir Edward Beatty as his Representative in Canada as from October 1, 1941. Mr. Huband will have the assistance of a Board consisting of the four existing directors who are mem-

bers of the C.P.R. organisation and of other members who will be appointed from among prominent representatives of the shipping community. The offices of the Canadian representative will be maintained at the Windsor station of the C.P.R. in Montreal.

Mr. Huband, who has since the beginning of the war been assisting Sir Ashley Sparks, the Ministry of War Transport representative in America, was immediately prior to the war, representative of the Cunard White Star Limited in Montreal.

Mr. Percy George Gibbins, Assistant Divisional Superintendent, Northern Division, L.P.T.B., who has, as recorded in our September 26 issue, been appointed Divisional Superintendent (Southern Division), joined the Walthamstow Corporation Tramways as points-boy in 1910. He was made a depot-hand in 1911, and in 1912 was transferred to the traffic staff as traffic clerk. In 1914, he took over the duties of Depot Inspector, and served with the Forces from 1915 to 1919. He was re-appointed traffic clerk and in 1926 he became Chief Assistant to the Tramways Manager. In 1930 he was appointed Operating Assistant, and with the formation of the London Passenger Transport Board in 1933, was made District Superintendent. In 1935 he became Assistant Divisional Superintendent (Northern Division).

Mr. P. G. Gibbins

Appointed Divisional Superintendent, Southern Division (Trams & Trolleybuses), L.P.T.B.

Mr. Harold Torre, whose death on September 28 we recorded briefly at page 336 of our October 3 issue, was for nearly forty years in railway service in Argentina, and for many years past, up to the time of his death, was the correspondent there for THE RAILWAY GAZETTE, a position which he occupied with the cordial approval of all the principal Argentine railways. Mr. Torre who was born in London, began his long railway career with the old Buenos Ayres & Ensenada Railway (since absorbed in the B.A.G.S. system), with which his father, the late Mr. W. C. K. Torre, was connected for many years. He was first employed in the General Manager's Office, and subsequently gained experience in the Traffic, Chief Engineer's, and Chief Mechanical Engineer's Departments. In March, 1903, Mr. Torre joined the Central Argentine Railway as a clerk in the Traffic Manager's Office; in 1906 he was promoted to be Chief of the Traffic Accounts Office; and later took over the Statistics Section as well, having meanwhile gained outside experience as Traffic Inspector at Victoria and San Martin. In 1913 a Publicity Section was created to deal with railway advertising and general propaganda in all its branches, and Mr. Torre was appointed its first Chief. In 1922 an independent Publicity Department, directly under the General Manager, was formed under Mr. Torre's personal direction. The work of the Department included the production of the company's staff magazine, of which Mr. Torre was the Editor for 18 years. In addition to his railway duties, Mr. Torre took an active part in public life in various important capacities. During the war of 1914-1919 he was Honorary Secretary of the British Patriotic Committee in Buenos Aires, for which services he was publicly thanked by the then British Minister, Sir Reginald Tower. During the visit to Buenos Aires of Lord D'Abernon's Mission in 1929, Mr. Torre was attached to it as honorary interpreter, and his services in this connection received tangible recognition by the presentation of a gold cigarette case. As Director of Publicity in connection with the British Empire Trade Exhibition at Buenos Aires in 1931, Mr. Torre was responsible for the advertising campaign in Argentina and the adjoining republics, which was such an important factor in the success of the Fair. He retired on pension from the position of Chief of the Publicity Department, Central Argentine Railway, at the end of December, 1933, but continued to represent THE RAILWAY GAZETTE in Argentina.

The late Mr. Harold Torre

Argentine Correspondent of THE RAILWAY GAZETTE, and Chief of the Publicity Department, Central Argentine Railway, 1913-1933

Mr. Thomas C. S. Haslam, M.Inst.C.E., M.Inst.T., late General Manager, the Villalonga-American Express Company, Buenos Aires, who, as recorded in our September 19 issue, has been appointed Assistant to the General Manager, Buenos Ayres & Pacific Railway, was born at Aguilas, Spain, of British parents, and educated privately and at St. George's College, Quilmes, Buenos Aires. He began his railway career in the Engineer's Department of the Bahia Blanca & North Western Railway (now incorporated in the Buenos Ayres Great Southern Railway) and was engaged on the construction of the line from Bahia Blanca to Patagones. After acting as Sectional Engineer, he was, in 1919, made Assistant to the Divisional Engineer. He subsequently transferred to the Buenos Ayres & Pacific Railway, where he served as Constructing Engineer from 1923 to 1929, when he was appointed General Manager of the La Guaira & Caracas Railway, Venezuela. In 1935 he relinquished this post to return to Buenos Aires as General Manager of the Villalonga Express Company. On the amalgamation of the latter company with the American Express Company a few years ago, Mr. Haslam became Vice-President of the joint concern.

Mr. T. C. S. Haslam

Appointed Assistant to the General Manager, Buenos Ayres & Pacific Railway

TRANSPORT SERVICES AND THE WAR—110

Minister of War Transport's railway tour—Timetable changes—London Transport's plans for winter—The Wissington Light Railway

Many grades of railwaymen and women met Lord Leathers, Minister of War Transport, recently when, accompanied by Sir Alan Anderson, Chairman of the Railway Executive Committee & Controller of Railways, he made a tour of railway marshalling yards, signal boxes, and depots in the South of England, expressly to meet as many as possible of the railway employees at their work. He came in contact with all grades including locomotivemen, guards, signalmen, platelayers, painters, porters, carters, inspectors, foremen, and clerical workers. In thanking them for the great part they were playing in the war effort he said, "I look forward with confidence to the ability of the railway companies and railwaymen to meet any difficulties which may arise in the future. With increasing production of munitions and other war materials and increasing imports, the load on the railways during the winter months will be greater than last year. The railways have the benefit of the experience of last year, and much has been done during the summer to increase their capacity in relation to the traffic anticipated." During the tour Lord Leathers met and congratulated a number of railwaymen and women who have been decorated by the King for gallantry during enemy action. Some photographs taken during the tour are reproduced at page 362.

Cheap Day Ticket Restriction

As from October 1, cheap day return tickets to London are not available for the return journey between 4.30 p.m. and 6.30 p.m. except on Saturdays or Sundays. This restriction, which was announced by the Parliamentary Secretary to the Ministry of War Transport on August 7, is made to facilitate the homeward journey of war workers, during the hours when traffic is at its peak, and will remain in force until the end of March.

Southern Railway Home Guard

Among its recent operational exercises, the Southern Railway Home Guard was engaged in a large-scale attack on an aerodrome defended by Regular troops, after which the Group Commander, Colonel F. J. Wymer, received a report indicating a high degree of efficiency on the part of the men under his command. Colonel Wymer's Deputy is Lt.-Colonel H. Layton, M.C., and his Staff Officer is Lt.-Colonel K. R. Ellson. A recent visit to the headquarters of the S.R. Home Guard showed an excellent and encouraging condition of efficiency and morale, and the weekend training camp, of which we reproduce a picture at page 361, confirmed this impression.

The G.W.R. Winter Timetables

A notable feature of the G.W.R. winter timetables is a considerable increase in journey times, ranging on the longer journeys from 15 to as much as 30 min. Much of this addition is due to increased duration of stops, though many running times have also been eased out. The 1.15 a.m. sleeping car express from Paddington to Penzance, and the 1.15 p.m. restaurant car express from Penzance to Paddington (arr. 9.25 p.m.) are withdrawn; also the 3.55 from Paddington to Swansea and the 5.30 p.m. from Swansea to Paddington. The Torbay portion of the Cornish Riviera Limited, which from the first war winter has been running independently, is now so shown in the public timetables, leaving Paddington at 10.40 a.m., and stopping first at Taunton at 1.30 p.m. The previous 10.35 a.m. from Paddington to Penzance *via* Bristol now starts at 11.15 a.m., so preserving the sequence of Bristol departures at 15 min. past the hour; it is for Bath, Bristol, Weston-super-Mare, and Taunton only; the Penzance connection has been severed by starting the latter from Bristol at 1.5 p.m., 40 min. ahead of the London arrival. Similarly the 1.15 p.m. from Paddington, hitherto for Penzance and Kingswear *via* Bristol, runs to Bristol and Weston-super-Mare only, and calls additionally at Swindon. In the up direction an important alteration is that the 8 a.m. from Penzance to Paddington, hitherto running *via* Bristol, and reaching Paddington at 6.20 p.m., 50 min. after the 9.30 a.m. up Cornish Riviera Limited, is diverted *via* Westbury, nonstop from Taunton to Reading, and reaches Paddington at 4.50 p.m. This brings up from Newton Abbot the Torbay section of the Riviera. A semi-fast service is still provided from Bristol, at 2.35 instead of 2.55 p.m., but takes no less than 3¾ hr. for the 118·3 miles. On the Bristol route the crowded 9.15 a.m. semi-fast from Paddington is relieved of its Gloucester and Cheltenham section, which is transferred to the 9.5 a.m. down, the latter calling additionally at Swindon. The corresponding up express (4.30 p.m. from Bristol) starts at 4 p.m., calls at Reading in addition to Bath, and is due at 6.40 p.m., 20 min. earlier. A valuable addition to the up service from Bristol is the reinstatement of an express at 9 a.m., calling only at Bath and due in London at 11.30 a.m. On the north to west route, *via* Hereford, there is a permanent division of the principal day service, the 9.25 a.m. from Manchester to the West of England running from Crewe to Bristol independently of the 9.10 a.m. from Liverpool, but the connection with the 1.30 p.m. from Paddington to Penzance is severed, and it is no longer possible to travel by day from Lancashire stations to points west of Plymouth. In the reverse direction the 4.40 p.m. from Bristol and 4.50 p.m. from Cardiff run independently between Pontypool Road and Shrewsbury.

L.M.S.R. and L.N.E.R. Winter Train Services

Among the relatively few alterations in the L.M.S.R. timetables operating from October 6 one regrettable change is the withdrawal of several restaurant car services. These include the cars on the 9.5 a.m. from St. Pancras to Sheffield, the 7.20 a.m. Manchester to St. Pancras, the 12.20 p.m. Bradford to St. Pancras and the 2.45 p.m. Blackpool Central to Euston. On the 1.30 p.m. from St. Pancras to Manchester and the 5.50 p.m. Manchester to St. Pancras the cars now operate between St. Pancras and Derby only. There is one addition to the L.M.S.R. restaurant car trains, namely, the 7.15 a.m. from Sheffield to St. Pancras. Certain summer duplicate trains are retained, in particular the 10 a.m. restaurant car service from Blackpool to Euston, with through portion from Barrow at 9.10 a.m., due Euston 4 p.m. (relieving the 8.30 a.m. from Carlisle), and the continuation from Perth to Glasgow of the 11 a.m. and 3.45 p.m. from Inverness. The 2 p.m. from Liverpool to Euston calls at Stafford in addition to Rugby, arriving at 6.15 instead of 6.10 p.m., the Stafford stop on the 11.15 a.m. from Windermere to Euston being withdrawn. The up Heysham boat express, which has been making steadily later arrivals at Euston, is now put back further from 2.50 to 3.40 p.m. The 7.20 p.m. from Euston to Inverness and the 9.15 p.m. to Glasgow both cease to call at Carlisle passenger station. Among minor changes the morning North Wales through service is transferred from the 10.25 a.m. to the 10.35 a.m. from Euston; the 1 p.m. Glasgow express reaches Glasgow Central at 9.50 instead of 9.45 p.m., the 5.40 p.m. from Glasgow and the 12.5 a.m. from Manchester to Euston transpose their paths, being due at 5.33 and 5.46 a.m. (instead of 5.55 and 5.24 a.m.), the 11.55 p.m. down Liverpool and Manchester sleeping car express starts at 11.45 instead of 11.55 p.m., and the 12.2 a.m. from Euston at 11.55 p.m.

Scarcely any alterations of note are seen in the new L.N.E.R. book. The 6 p.m. from Liverpool Street to Clacton-on-Sea conveys a portion for Ipswich, due 8 p.m., and the Clacton buffet car is diverted to Ipswich; similarly in the morning there is a new buffet car train from Ipswich at 7.50 a.m. which joins at Colchester the 7.30 (now 7.28) a.m. from Clacton, due in London at 9.42 a.m. The through express trains between

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Colchester and Leeds and Colchester and Edinburgh, put on last summer, are retained, as well as the Colchester—York buffet service. In the Great Northern section the 4.50 p.m. from King's Cross is divided, both sections calling at Finsbury Park. The Hitchin portion leaves at 4.40 p.m., and by this earlier departure avoids waiting at Huntingdon to be passed by the 5.30 and 5.50 p.m. down expresses, so reaching Peterborough at 6.56 instead of 7.37 p.m.; the 4.50 p.m. down serves stations on the Cambridge branch.

New S.R. Timetable

The Southern Railway timetables reveal very few alterations, and the main-line services operative during the past summer remain practically unaltered for the winter.

London Transport Winter Plans

The London Passenger Transport Board has completed its plans for the winter. The experience of operation under war time conditions gained last winter has been closely examined in relation to the many changes in numbers and the location of workers which have taken place since that time, and the lessons learned are reflected in the winter programme, which is being introduced as follow :—

Underground railways	October 6
Country Buses and Green Line coaches...	October 8
Central Buses, trams, and trolleybuses ...	October 29

Workers at war factories, the number and size of which have been greatly increased since last winter, will receive first consideration in the winter schedules. Many improvements and additions to the bus, tram, and trolleybus services in factory areas are being made; and a substantial contribution to the more efficient transport of factory workers will be afforded by the scheme initiated by the London & South Eastern Regional Board of the Production Executive, in collaboration with London Transport for the staggering of working hours. More than 400,000 workers, it is estimated, will benefit by the scheme which, by reducing the discomfort and time spent in travelling to and from work each day, should be of direct assistance in the vital task of production. The basis of the scheme, which has been worked out by representatives of the factory managements in consultation with the trade unions and the transport undertakings, is the readjustment, by 15 minute intervals, of the times of beginning and ending work, with the object of making possible a more even flow of passengers at the times of heavy demand.

London Transport has always provided the largest possible number of vehicles to and from each factory or group of factories, but the " peaks " of traffic have been so high that there has often been shortage of accommodation and delay at the beginning and end of each shift, and also there has been a wasteful excess of seats just before or immediately after the maximum demand. The problem that had to be met and the help afforded by staggering is well illustrated by the following figures relating to a group of factories in East London :—

Time	No. of workers arriving Old rate	New rate
7 a.m.	302	302
7.15 a.m.	—	3,000
7.30 a.m.	5,514	2,514
7.45 a.m.	56	3,556
8 a.m.	6,337	2,067
8.10 a.m.	—	870
8.30 a.m.	900	900

The spreading of the hours for beginning work will automatically result in a more even distribution of traffic at the end of the day. The meetings between transport officials, factory managements, and the trade unions, have produced many useful results apart from staggering. Suggestions for improvements and additions to services have been adopted and embodied in the winter programme; and assurances have been given that in the future managements will not suddenly change working hours without first consulting the officials of London Transport as to the necessary transport arrangements. This co-operation between industry and transport should result in the avoidance of many of the difficulties and misunderstandings which arose last winter.

All forms of transport will continue to run at full strength until about 9.30 a.m. to carry workers of every description. The chief single problem last winter, apart from interruptions to services as a result of enemy action, was the contraction of the period of the evening peak traffic from the 2½ hr. of peacetime to a little more than 1 hr. The homeward rush began a little earlier each day as the winter progressed. This winter London Transport will begin to build up its services for the evening rush about 3.30 p.m. and the maximum services will be working by 4 p.m. Peak services will be maintained so long as is necessary, but the number of vehicles will be gradually scaled down until blackout running begins about 7 p.m.

It is hoped that shops, businesses, and offices will follow the lead of factory managements and assist the comfortable and speedy transport of their workers in the peak hours by staggering their hours of work. As in the industrial districts, the problem in Central London is not so much a shortage of means of transport during the peak periods as the overwhelming demands for accommodation caused at certain times by the simultaneous opening or closing of large numbers of establishments employing large staffs. The staggering of working hours enables a more efficient use to be made of the accommodation provided by London Transport and also enables London Transport to adjust its services more evenly to the demand. There will be no reduction of services as the result of staggering, but with the demands upon the accommodation distributed more evenly they will be adequate to reduce to the minimum the annoyance and fatigue now occasioned to workers because of delay in securing transport. Even if staggering is adopted to assist the arrangements being made by London Transport to disperse passengers rapidly, some queueing in Central London and other busy areas will be unavoidable, especially during the shortened evening peak. Large numbers of road inspectors will be detailed to supervise queues and to assist passengers to board the vehicles, and appeals will be made to passengers to help themselves and others by keeping the queues orderly, as they did last winter. More portable shelters are being constructed to protect waiting passengers.

The necessity of saving petrol and fuel oil, and the increased provision of transport for the war factories will make unavoidable some reduction of bus services between 10 a.m. and 3.30 p.m. This reduction will be spread as widely as possible.

From about 7 p.m., apart from numerous special arrangements to take war workers to and from factories, blackout services will begin on bus, tram, and trolleybus routes. In the Central Area services on the main bus routes, and on tram and trolleybus routes will be maintained at intervals of 10, 12, or 15 min. according to the demands of the route. On the more important sections of routes which are covered by more than one service, inter-working will result in much shorter intervals. As last winter, certain bus services will be withdrawn or curtailed after the evening peak period and notices to this effect will be exhibited on the buses concerned. The experience of last winter was that such provision was adequate to carry the persons who had to travel in the blackout.

To compensate for the reduction of road services in the blackout and to provide transport between the main-line railway terminals, services on all Underground lines will be more frequent at night than they were last winter, when it was found that the Underground was the most attractive form of travel in the blackout. Central buses, trams, and trolleybuses will begin their last journeys from the Central London area about 10.30 p.m. The times will be posted in the vehicles on each route. The last Green Line coaches will leave Central London between 7.30 and 8.30 p.m., according to the length of the route, and Country Buses will begin their last journeys between 9 and 9.30 p.m., according to the nature of the district they serve. All-night buses, trams, and trolleybuses will be run as at present. Last trains on the Underground will run at the customary times, leaving stations in Central London about half an hour after midnight.

Argentine Railwaymen's Gift to Southampton

On September 24 Sir Sam Fay presented a mobile kitchen to Southampton for the use of Civil Defence workers. The mobile kitchen is the gift of the non-British staff of the B.A. Great Southern, Western, and Midland Railways, of which Sir Sam Fay is a Director, and is one of 18 which the rail-

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waymen have given to cities and towns in Britain and to which reference was made in THE RAILWAY GAZETTE of July 25. In making the presentation Sir Sam Fay said that the ties between Great Britain and Argentina had always been very strong, more especially since the inception of the railways. When reports had reached Argentina of the bombing of Southampton, London, and other places, the men had expressed their sympathy in unmeasured terms, and had agreed to show it in a practical form; they had collected, mainly in small sums, over £8,000 to provide mobile kitchens for 18 of the larger towns in this country.

Ministry of Agriculture Railway in the Fens

An area of Norfolk fenland, which a year ago was growing only reeds and weeds, is being reclaimed rapidly and it is expected that next year 6,000 acres of recently derelict land will be under crop. Transport is naturally of primary importance in such a scheme, and an 18-mile railway is being used to provide the essential communication. The area in question, which is known as Feltwell Fen, is not being tackled for the first time. Some 35 years ago, Mr. A. J. Keeble endeavoured to develop the Wissington, Methwold, and Feltwell areas, and built a standard-gauge railway from Abbey & West Dereham station (on the Stoke Ferry branch of the then Great Eastern Railway) across the River Wissey to Wissington and Methwold. The railway was later extended to the heart of Feltwell. The Wissington sugar beet factory stands on the line of this railway, some two miles from the junction with the L.N.E.R., and the section serving the factory has continued in use, but beyond that point the track had been neglected. The whole line was leased by the British Sugar Corporation (the owner of the Wissington factory) from the Wissington Estate. The lease expired last March, and the corporation did not see its way to undertaking a renewal. As it appeared probable that the railway would cease to be worked, the Minister of Agriculture took over this line under war emergency powers and has had it renovated. The Minister himself formally reopened the railway on July 12, travelling on the footplate of an 0-6-0 saddle-tank locomotive. The Wissington Railway is at present 18 miles long and its management is vested in Mr. W. McAuley Gracie, Assistant Goods Manager, Southern Area. L.N.E.R., as Administrator by appointment of the Minister of Agriculture under seal. The Stoke Ferry branch of the L.N.E.R. leaves the main Cambridge to King's Lynn and Hunstanton line at Denver. There are two intermediate stations between Denver and Stoke Ferry, namely, Ryston and Abbey & West Dereham. The passenger service on this branch, which is usually called the Downham & Stoke Ferry branch, was withdrawn on September 22, 1930.

The Wissington Light Railway was built without Act of Parliament or Light Railway Order. Its track is of 60-lb. flat-bottom rails, dogged to sleepers spaced at 2 ft. 6 in. to 3 ft., and laid directly on the ground formation without ballast. There are many loading sidings or loops, and several long spurs of line. The track is carried over waterways by some ten bridges, usually of rolled steel joists, with timber-piled abutments, and over a county road by level crossing with cattle guards and public road approach signs. There is no signalling or telephonic system. Until May last, the British Sugar Corporation transported its own beet to the factory and also undertook (as lessee of the railway) all other agricultural traffic to and from the main line. The Minister of Agriculture secured the co-operation of the L.N.E.R. in reconditioning the line and undertaking general supervision, and of the British Sugar Corporation to maintain the traffic service as a haulage contractor on agreed terms. The five locomotives, as follow, are staffed and worked by the corporation :—

Date	Maker	Works No.	Type
1899	Hudswell Clarke	533	0-4-0
1909	Andrew Barclay	1,158	0-6-0
1917	Manning Wardle	1,927	0-6-0
1921	Manning Wardle	2,006	0-6-0
1938	Hudswell Clarke	1,700	0-6-0

National Dock Labour Corporation

On September 15 the National Dock Labour Corporation Limited was registered as a company, limited by guarantee and without share capital. There are 24 members, but provision is made for the directors to register a greater number. The objects of the undertakings are to act as a central or national organisation for promoting the rapid handling of goods and the quick turn-round of ships in United Kingdom ports, in particular by establishing an adequate, regular, and mobile labour force, and for the regular employment of transport workers.

The subscribers are: Messrs. A. Deakin, Acting. General Secretary, Transport & General Workers' Union; D. W. Large, Acting Secretary, London Docks Group, Transport & General Workers' Union; D. W. Milford, National Secretary, Transport & General Workers' Union; Sir John D. Ritchie, General Manager, Port of London Authority; Messrs. J. K. Swire, shipowner; C. Cullen, National Council of Port Labour Employers; S. Sparkes, director; and W. Moore Turner, General Secretary, National Amalgamated Stevedores & Dockers Union. The board is to consist of a chairman, a financial director, and not fewer than four nor more than six other directors. The chairman and financial director are to be appointed by the Minister of Labour & National Service—in the case of the chairman, after consultation with the National Joint Council for Dock Labour.

Mr. R. S. Hudson, Minister of Agriculture, with Mr. W. McAuley Gracie, Assistant Goods Manager, Southern Area, L.N.E.R., at the official opening of the Wissington Light Railway (shown in the sketch map alongside) on July 12 last

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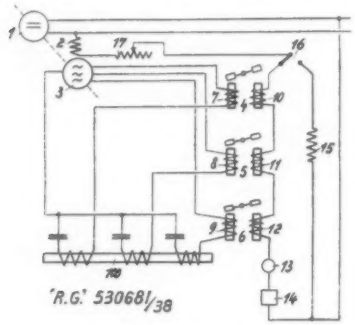
ABSTRACTS OF RECENT PATENTS

No. 530,681. Signalling

Vereinigte Eisenbahn-Signalwerke mit beschränkter Haftung, of Blockwerk, Berlin-Siemensstadt, Germany. (*Convention date: March* 14, 1938.)

An inductive train signalling and/or controlling system has impulse relays 4, 5, and 6 having coils 7, 8, and 9

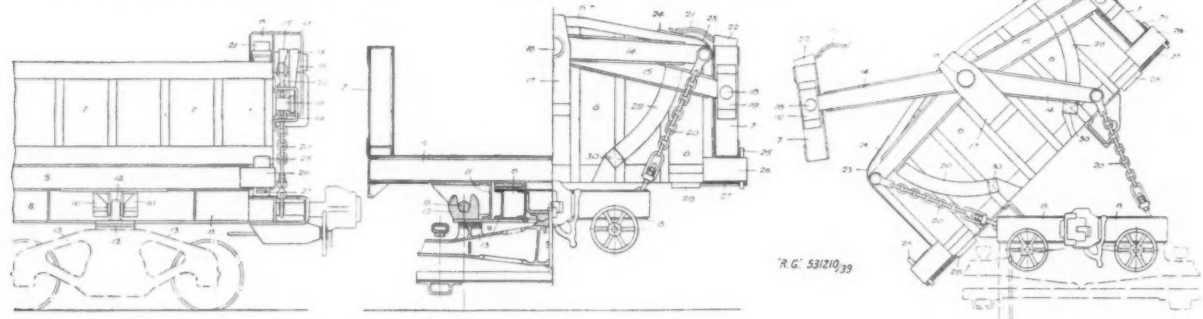


operated by impulse current from a multi-frequency generator 3, and coils 10, 11, and 12 energised by a pull-off current from a source 1 which may be a direct current dynamo driven by a small turbo-generator on the locomotive. The generator 3 has a field winding 2 in series with a rheostat 17. By means of switch 16 the pull-off current can be switched off independently of the generator field current. Electromagnets 13 and 14 are included in series with the coils 10, 11, and 12, and a resistance 15 is in series with switch 16. Current is supplied to windings 7, 8, and 9 through the condensers of the locomotive magnet 100.—(*Accepted December* 18, 1940.)

No. 531,210. Tipping Wagons

Metropolitan-Cammell Carriage & Wagon Co. Ltd., of Metropolitan Road, Saltley, Birmingham, 8, and Arthur Thomas Sturgess, of 130, *Grove Road, Sutton, Surrey.* (*Application date: July* 14, 1939.)

A side discharge tipping wagon has

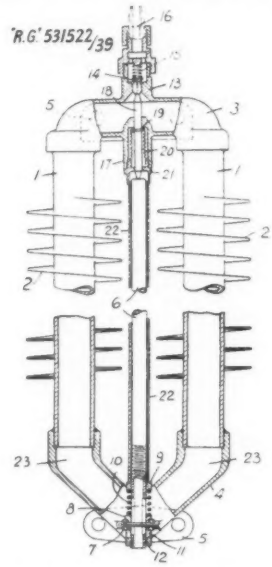


spring arms 21 on the doors 7, which bear on wearing strips 24 secured to the end walls 6 of the wagon body. When the body is tilted the arms 21 can slide on the strips 24 to lift the doors 7 under the movement of the contents of the wagon. The doors 7 are swung on and opened by levers 14 and 15 pivoted on a pin 16 on the wagon body. The body floor 5 is supported on a running frame 8. Tilting movement is effected about hinge pins 9 carried in brackets 10 on the underframe members 11 and jaws 12 mounted on bogie frames 13. Pin 16 bears in a bracket 17. Pins 18 on the doors 7 form trunnion connections to the levers 14 and 15 by bearing in brackets 19. Chains 20 anchor the other ends of the levers to the wagon frame. The arms 21 are secured by clips 22, and the walls 6 are rounded at 23 to avoid the doors 7 during the opening movement. If desired there may be catches consisting of bolt-plates 25 in housings 26 normally engaging the bottoms of the doors 7 by springs 27 which are secured to the end frame at 28. Arcuate guide plates 29 may be provided on the end walls 6, and stop blocks 30 for the ends of levers 14 and 15 may also be provided.—(*Accepted December* 31, 1940.)

No. 531,522. Radiators

Westinghouse Brake & Signal Co. Ltd. and Thomas Barty, all of 82, *York Way, King's Cross, London, N.*1. (*Application date: July* 4, 1939.)

Steam heating apparatus for railway vehicles consists of a radiator having a body consisting of two tubes 1 with fins or gills 2, the tubes 1 being joined at one end by a casing 3, and at the other end by a casing 4 provided with feet 5. Intermediate the tubes 1 is a thermal control rod 6 sliding in the head 4, for this purpose being provided with a lug 7 carrying a bush 8. Between bush 8 and a nut 9 is a spring 10, and outside the bush 8 are a nut 11 and a lock nut 12. The head 3 has an extension 13 which houses an inlet valve 14 with controlling spring 15, steam being supplied through pipe 16. Another extension 17 houses a spindle 18 which has a collar 19 secured to bellows 20. The opposite end of the bellows is secured to bushing 21. A tube 22 around rod 6 constitutes a compensating member, and abuts against bushing 21 and nut 9. The outlet head 4 has two passages 23 partly separated by a baffle plate. Expansion and contraction of the tubes



1, according to the temperature, moves the inlet head 3 to open or close valve 14 as the case may be. Expansion of rod 6 is counteracted by expansion of tube 22, as will be readily seen from the drawing. In this way the radiator is maintained at an even temperature.—(*Accepted January* 7, 1941.)

No. 532,046. Rail Joint

Jean Jules Arnold Bourgeois, of Badstrasse 67, *Baden, Canton Aargau, Switzerland.* (*Application date: August* 14, 1939.)

A rail joint consists of fish-plates 3 and 4 joining the rails 1 and 2, and welded to rail 1. Bolt 6 secures the fish-plates 3 and 4 to rail 2. Welded to the fish-plates 3 and 4 are the limbs 5*a* and 5*b* of a plate 5 which extends transversely to the rails. The middle limb 5*c* of plate 5 is welded to the rail 2. In this way relative movement of the rails 1 and 2 along their common axis is permitted, but relative move-

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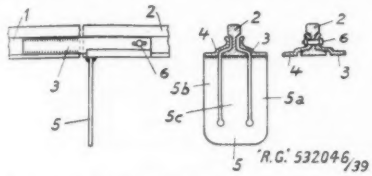
ment transversely thereto is prevented. The printed specification describes and illustrates several modifications of this

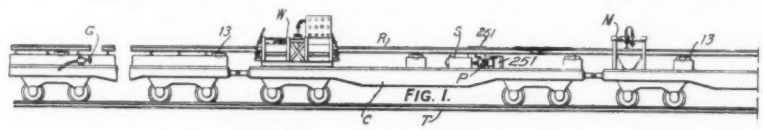


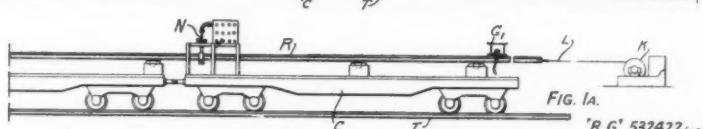
device, such as the use of a number of plates 5.—(*Accepted January* 16, 1941.)

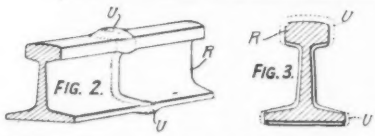
No. 532,422. Welding Rails

The Linde Air Products Company, of 30, *East* 42*nd Street, New York, United States of America (Assignees of Arthur Roemer Lytle, William Morton and Leonard Victor Spangberg, residing respectively at* 1319, *Lafayette Avenue,* 2861, *Lewiston Road, and No.* 411, *Jefferson Apartments, all of Niagara Falls, State of New York, United States of America. (Convention date: December* 3, 1938.)

A process for butt-welding, particularly for steel rails, consists in applying heating flames simultaneously to all parts of the rails adjacent the abutting ends, reciprocating the flames together longitudinally of the rails across the abutting ends, to heat the heated parts of the rails to a welding temperature below the solidus temperature of the steel, and continuously applying pressure to force the rail ends together, the pressure being sufficient to force softened metal outwardly all round the joint. Figs. 1 and 1A show an arrangement of apparatus for carrying out the process, Fig. 2 shows a welded joint prior to reshaping, and Fig. 3 is a section through a joint. Referring to the drawings, the rail *R*, to be continuously welded, is supported on rollers 13 carried on flat trucks *C* which are movable along track *I*. Mounted successively on the trucks *C* are welding apparatus *W*, reshaping apparatus *M*, and annealing apparatus *N*. Ahead of the welding apparatus there are one or more grinders *G* for providing the





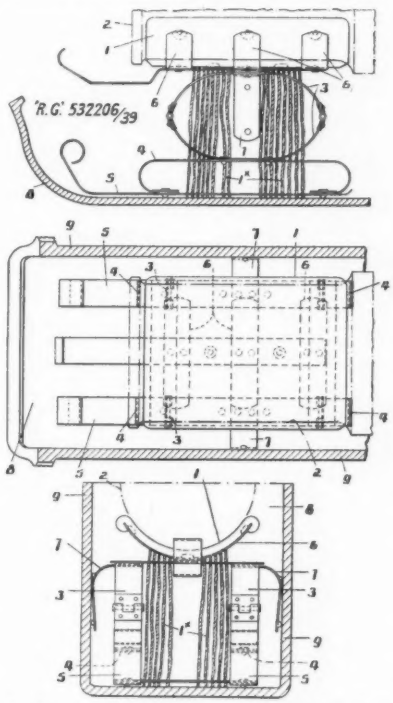


rail ends with smooth clean surfaces. Following the annealing apparatus are one or more grinders *G* for removing excess metal *U* from the joints. The rail *R* is moved by a winch *K* and cable *L*. The various rail-clamping and pressure-applying mechanisms and the torch carriage reciprocating mechanism, are operated by fluid pressure from a hydraulic system *P* with storage tanks 251 for the pressure fluid. The apparatus is fully described and illustrated in the printed specification.—(*Accepted January* 23, 1941.)

No. 532,206. Axle Lubricators

Daniel Ernest Mooney, of Lendal Bridge, York. (Application date: August 22, 1939.)

A lubricator for railway vehicle axleboxes consists of a pad 1 with capillary



feeder 1^x mounted, in contact with the journal 2, upon a spring frame. The spring frame comprises bolster springs 3 mounted on semi-elliptical springs 4 fastened to the side members 5 of the lubricator base frame. Secured to the upper halves of the springs 3 is a cradle 6 carrying the pad 1. Sprung arms 7 extend so that, when the lubricator is inserted in the axlebox 8, they engage the sides 9 of the axlebox to hold the lubricator in position. The arms 7 are compressed prior to insertion in the axlebox 8, and so also is the frame, so that, once inside the axlebox it will open to the full size thereof.—(*Accepted January* 20, 1941.)

COMPLETE SPECIFICATIONS ACCEPTED

529,815. Summerson & Sons Ltd., T., and Wrightson, S. S. Switch boxes for railways, tramways, and the like.

529,827. Galbraith, A. Ventilation systems for vehices.

529,961. Taylor Bros. (Sandiacre) Ltd. and Taylor, L. Railway and like switches.

529,975. Soc. d'Exploitation de Brevets Industriels. Apparatus for the hardening of section iron of great length, and in particular of rails.

530,038. Johnson, M. E. Servomotor brake pipe couplings for vehicles.

530,076. Bayerische Motoren Werke A.G. Ventilating devices for vehicles.

530,080. Green, H., and Frost, J. F. Signalling devices for use on railroads.

530,083. Ellson, G. Rail-expansion joint.

530,135. Barker, J., Simpson, A., Calverley, H., and Wilkinson, F. W. (trading as Dale Welding & Engineering Company). Lifting and transporting trucks.

530,165. Babcock & Wilcox Limited. Tubulous boilers.

530,170. La Mont Steam Generator Limited. Water-tube boilers.

530,446. W. E. Woodard. Valve gear for fluid-pressure engines, such as locomotive engines.

530,449. Lever Bros. & Unilever Limited and Walton, J. B. Containers for use with road, rail, or water-borne vehicles.

530,475. P. & M. Co. (England) Ltd., Winby, L. P., and Hurrell, G. C. Rail-lubricating apparatus.

530,521. Lever Bros. & Unilever Limited and Walton, J. B. Vehicle bodies and containers.

530,681. Vereinigte Eisenbahn-Signalwerke Ges. Inductive train signalling and/or control systems.

530,729. Garrett & Co. Ltd., C., and Oliver, C. L. Machines or devices for delivering tickets and the like.

531,113. Roe, L. B., and Roe, J. J. A. Ventilators for vehicles.

531,132. Deas, J. N., and Thames Bank Iron Co. Ltd. Water tube boilers.

531,210. Metropolitan-Cammell Carriage & Wagon Co. Ltd., and Sturgess, A. T. Side-discharge tipping wagons.

531,417. Educational Supply Association Limited and Leonard, J. W. Folding and sliding doors, partitions and windows.

531,552. Westinghouse Brake & Signal Co. Ltd., and Barty, T. Steam-heating radiators, more particularly for railway vehicles.

531,722. Schweizerische Lokomotiv-und Maschinenfabrik. Combined adhesion and rack drive for rail-guided vehicles.

531,814. General Electric Co. Ltd., and Croft, E. H. Insulation of electrical apparatus particularly for trolley buses.

531,869. Etablissements Compin. Equipment of vehicles for the public transportation of passengers.

531,950. Kuhlein, V. Sliding and folding doors and windows.

532,031. Associated Equipment Co. Ltd., and Priddle, A. T. C. Ventilating systems for vehicles.

532,046. Bourgeois, J. J. A. Joint for railway sections.

XUM

Notes and News

Institute of Transport.—The opening meeting for the new session, 1941-42, will be held on October 13, 1941, at 5 p.m., at the Institution of Electrical Engineers, Victoria Embankment, London, W.C.2. Mr. J. S. Nicholl, C.B.E., will be installed as President and will deliver his Presidential Address. Afterwards the President will hold an informal reception.

Road Accidents in August.—The return issued by the Ministry of War Transport of the number of persons reported to have died or to have been injured as a result of road accidents in Great Britain during the month of August shows 729 deaths (compared with 732 in August, 1940), 4,182 seriously injured, and 12,817 slightly injured. Comparative figures for persons injured are not available for a year ago.

Great Southern Railways (Eire).—For the 38th week of 1941 the Great Southern Railways Company reports passenger receipts of £41,750 (against £42,204), and goods receipts of £64,665 (against £50,487) making a total of £106,415 against £92,691 for the corresponding period of the previous year. The aggregate receipts to date are passenger £1,534,199 (against £1,372,647), goods £1,937,285 (against £1,745,873), making a total of £3,471,484 (against £3,118,520).

Railwaymen's Bonus in Eire.—On September 9 last the Irish Railways Negotiating Committee met in Dublin to consider the various claims of the Belfast & County Down Railway staff for increased wages. These were 10s. a week for members of the N.U.R. and A.S.L.E. & F., and 15 per cent. for members of the R.C.A. The committee awarded an all-round bonus of 2s. 6d. a week for all adult staff, and 1s. 3d. for junior employees of the railway, the bonus to take effect from September 1.

The Southern Railway and Salvage.—On Thursday, October 2, guests of the Southern Railway were shown a film, "Salving Our Scrap," which stressed with graphic realism the twofold need to collect all usable salvage and avoid all possible waste. Mr. C. Grasemann, Public Relations & Advertising Officer, said that the film had been produced entirely by Southern Railway staff under the direction of its Salvage Officer, and that it was proposed to show it not only in the company's mobile cinema coach, but in public buildings at towns served by the railway, thereby giving a fillip to the salvage campaigns of provincial authorities. A series of excellent "takes" showed how essential materials, particularly paper of all kinds, metals, glass, and bones, were salved and sent to depots and factories. With the slogan "Out of the frying-pan into the Spitfire" the aeroplane, built as a result of Southern Railway co-operation and christened *Invicta*, was shown on the screen. That well-known character, "Sunny South Sam," a Southern guard now serving with H.M. forces, was metamorphosed into "Salvage Sam" gently admonishing members of the staff for derelictions, such as throwing away cigarette-packets, leaving gas-rings burning and spilling lubricating oil.

Among those present were Messrs. Robert Holland Martin (Chairman, Southern Railway Company), E. J. Missenden (General Manager), J. Elliot (Deputy General Manager), O. Cromwell (Staff Assistant), R. M. T. Richards (Traffic Manager), C. Grasemann (Public Relations & Advertising Officer), C. J. Francis (Stores Superintendent), W. M. Perts (Commercial Superintendent), J. Drinkwater (Salvage Officer), G. H. Loftus Allen (Advertising and Publicity Officer, L.M.S.R.), G. Dyall (Acting Publicity Officer, G.W.R.), W. P. N. Edwards (Public Relations Officer, L.P.T.B.), J. R. Hind (Railway Press Bureau), H. D. Judd (Controller of Salvage, Ministry of Supply).

Staff & Labour Matters

Railway Wages

The N.U.R. has announced that it has presented to the railway managements a claim for a minimum wage of £3 a week, exclusive of war wage advances, in accordance with a resolution of the annual general conference of the union. That conference also passed another resolution agreeing in principle with the application of the Essential Work (General Provisions) Order to the railway industry, subject to certain conditions, one of which was that there should be a minimum wage of £3 a week, but Mr. Marchbank, writing in the *Railway Review*, states that the present claim is only indirectly connected with the decision respecting the application of the Essential Work Order to the Railway industry. Continuing, Mr. Marchbank states that the union's stand for a £3 a week minimum is obviously integral to the union's conception of the vitally important service that railwaymen are contributing to the national war effort, and that the nature of their work entitles them to a reasonable standard of life based on the principle of a minimum wage.

Mr. Marchbank also states that he deems it desirable, in view of what has been said and written about the stabilisation of wages in wartime, to emphasise that, in the union's view, it is impossible to consider any proposal for the "pegging" of wages at their present level while there still exists such wide disparities in the wages of different groups of workpeople, and while the Government schemes of price regulation and rationing of commodities are so defective and inequitable in their operation.

The present minimum wage was decided by the Railway Staff National Tribunal in its Decision No. 6, dated October 18, 1939, and is as follows:—

	Male staff	Female staff
	s.	s. d.
London	50	38 0
Industrial	48	36 6
Rural	47	35 0

Since the tribunal's decision railway employees have received special war advances to meet the conditions brought about by the war. These were given in three stages, the first operating from January 1, 1940, the second from June 3, 1940, and the third from January 6, 1941. The total amount of the war advances is 11s. a week for adult male staff and 8s. 3d. a week for adult female staff, with lesser amounts for the junior staff. These special war advances are, in effect, part of the rate of pay for they are taken into consideration in the calculation of payment for overtime, Sunday duty, and night duty, and they are paid during holidays in just the same way as the standard rate of pay.

The claim of the N.U.R., however, is that there shall be a minimum wage of £3 a week, exclusive of the war advances, and would, in effect, if conceded, mean that the minimum rate for male adult staff in rural areas would be increased from 58s. to 71s. a week. The claim would not, of course, end there; the Railway Staff National Tribunal, in Decision No. 6 dealing with the claim for a 50s. minimum, stated that it was agreed that whatever the new minimum rate fixed for men in London, the corresponding minimum should be lower for those in industrial and rural areas, and this principle would no doubt have to be followed in the present case. Further, the raising of the minimum wage to the figure claimed by the N.U.R. would have repercussions on other grades, for it would mean that men in different grades would be receiving the same rate of pay and, to avoid this, consequential changes, as they were termed by the tribunal, would have to be made to ensure appropriate differentials between the various grades.

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices Oct. 3, 1941	Prices Rise/Fall
G.W.R.				
Cons. Ord.	52	22½	42	+ 1
5% Con. Pref. ...	103½	58	100½	—
5% Red. Pref. (1950)	105½	88	103	—
4% Deb.	107½	90½	107½	—
4½% Deb.	108½	96½	109	—
4½% Deb.	114¾	96	115½	—
5% Deb.	124	106	128	—
2½% Deb.	66½	57	66	—
5% Rt. Charge ...	117¾	97	124½	—
5% Cons. Guar. ...	117	90½	120½	— 1
L.M.S.R.				
Ord.	24⅞	9	16½	+ ½
4% Pref. (1923) ...	60½	21⅛	50½	+ 1
4% Pref.	70¾	35	63½	—
5% Red. Pref. (1955)	94½	60	92½	— 1
4% Deb.	101¾	81	101½	—
5% Red. Deb. (1952)	109½	102	110½	+ 2½
4% Guar.	93¾	65	94½	—
L.N.E.R.				
5% Pref. Ord. ...	8⅜	1½	2⅜	—
Def. Ord.	4⅜	1¼	1½	—
4% First Pref. ...	60	20	49½	+ 1
4% Second Pref. ...	22⅝	6½	18	+ 1
5% Red. Pref. (1955)	80	34½	76½	—
4% First Guar. ...	86½	56	85½	—
4% Second Guar. ...	77½	37	75½	—
3% Deb.	73½	54½	75½	—
4% Deb.	97⅜	74	100½	—
5% Red. Deb. (1947)	107	96¾	103	— ½
4½% Sinking Fund Red. Deb.	104	98	101½	—
SOUTHERN				
Pref. Ord.	79	34	62½	—
Def. Ord.	22½	7	15	+ ½
5% Pref.	104½	58¾	98½	—
5% Red. Pref. (1964)	105	85	103¼	—
5% Guar. Pref. ...	116¾	90	121½	—
5% Red. Guar. Pref. (1957)	114⅞	94	111½	—
4% Deb.	106¾	84½	106½	—
5% Deb.	122½	100	126½	—
4% Red. Deb. (1962-67)	106	96½	105	—
4% Red. Deb. (1970-80)	106¾	93	105	—
FORTH BRIDGE				
4% Deb.	95½	87	94½	—
4% Guar.	93½	81½	94½	—
L.P.T.B.				
4½% "A"	116	103	113¾	—
5% "A"	121½	107	122½	—
4½% "T.F.A." ...	105½	101	101½	—
5% "B"	116	102	113½	—
"C"	65½	24	42	— 1
MERSEY				
Ord.	26	18½	20½	—
4% Perp. Deb. ...	92½	86¾	95½	—
3% Perp. Deb. ...	68	63	70½	—
3% Perp. Pref. ...	57	50½	56	—
IRELAND BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4½	1½	7	—
G. SOUTHERN				
Ord.	12½	4	5	—
Pref.	15½	6	6½	—
Guar.	36	15	27½	—
Deb.	55½	40	50½	—

OFFICIAL NOTICES

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The Argentine Railway Situation

Privately-owned companies and exchange losses

At the request of the Minister of Public Works, the representatives of the privately-owned Argentine railways and the labour unions have submitted separate notes to the Government embodying their proposals for a solution of the difficulties under which the companies are working, both from the financial standpoint and also as to their relations with their personnel.

The companies' note deals mainly with the exchange situation as it affects the railway companies. For some years exchange losses have been a prominent factor in creating the present economic plight of the Argentine railways, representing as they do a yearly average of nearly $40,000,000 pesos, or an aggregate since 1935 of over $230,000,000. The note shows that the privately-owned railways represent an investment (taking the year 1937 as a basis and excluding the lines since acquired by the State) of $2,950,769,000 pesos. This is the amount of capital recognised by the Argentine Government. The aggregate goods tonnage carried a year during the last five years averaged 35,000,000 tons. The number of employees on the payroll is 96,799, and the total of salaries and wages disbursed during the same period averaged $218,060,000 pesos a year.

Transfer of Exchange

The note points out that the Government purchases foreign exchange at a lower price than that at which it sells it to those who have to effect payments abroad. In this way it has built up the exchange margin fund. According to the 1939 annual report of the Ministry of Finance, the exchange margin fund produced between 1933 and 1939 inclusive the large sum of $577,472,500. A large part of this money has been used to defray administrative expenses and in the subsidising of the grain, meat, milk, cotton, wine, and other national industries, and in the construction of grain elevators and port works. The note stresses the importance of an efficient transport system in the marketing and distribution of the country's products—a service which no other mode of land transport has yet been found capable of performing so cheaply and efficiently as the railways—and points out that all measures for aiding agricultural, livestock, and mineral production would be in vain if the railways were not in a position to effect the transport of these products to the centres of consumption and export.

The note recalls that the Government committee composed of leading financial, railway, and industrial experts, appointed in 1934 to study this matter, recommended that as the exchange control regulations enabled the country's livestock and agricultural produce to be disposed of at favourable prices, the railways which added to the value of these products by supplying the necessary transport facilities, should share in the advantages which trade and industry derived from the Government's exchange control policy. In this way the extra working expenses borne by the railways would be compensated to some extent, in view of the fact that they had not been allowed to increase their tariffs. The committee pointed out that, while the exchange regulations had benefited the agricultural industry, which provided the bulk of the traffic carried by the railways, the effect on the latter had been exactly the reverse, as the Government's exchange policy had still further reduced their already diminished profits. The note states that since then the situation has grown steadily worse.

After mentioning that the amount which the exchange margin tax represents for the railways is one of the heaviest collected by the State, the companies' note points out that the Argentine Government buys pounds sterling at $13.50 and hands them over at $15.00 for imported materials and $16.00 for financial services; a difference of $1.50 and $2.50 a pound. Deducting 2 per cent. for expenses, the tax is equivalent to 9·8 per cent. and 15·3 per cent., respectively, of the railways' net receipts, destined for the payment of dividends and materials. The note points out that the debentures alone of the British-owned railways call for an annual service of $4,643,334, which at the par rate of $11.45 to the pound amounts to $53,166,174 pesos, but at the present rate of $16.00 to the pound amounts to $74,293,344 pesos, a sum which the receipts have not sufficed to cover for many years past. As to the shares, no dividend has been paid since 1930.

Effect on Companies

The enormous sum irretrievably lost by the railways owing to the exchange differences has retarded their development, injured their credit and that of the country by hindering them from raising fresh capital wherewith to carry out new works, and made it impossible for them to renew materials and equipment on an adequate scale.

The companies' note concludes by requesting the Government to give effect as soon as possible to the recommendations contained in the report issued by the National Railway Board on the financial situation of the companies, in order to remedy a state of affairs the pernicious effects of which upon the national prosperity are clear. The note suggests that the remedies proposed in that report be studied to see if they can be applied within the framework of present methods. Meanwhile any measures which would tend towards the alleviation or removal of some of the existing hindrances to the efficient working of the railways should be adopted. Amongst these the granting of exchange at the Government's purchase rate is the easiest to carry out and the one which would have the most tranquillising effect on both the companies and the unions.

The Unions' Note

In their note to the Minister of Public Works the unions again demand the suppression of the wage-cuts, coupled with the suggestion that a portion of the Government's profits from exchange control be allocated to the companies to assist them to meet their obligations to the Railway Pension Fund, the position of which is extremely precarious. The unions point out that owing to the financial situation of the railways, they are unable to pay into the fund the proportion of 8 per cent. on their salaries and wages bill, as established by law. The total amount which the companies owe to the fund in this respect is $68,000,000 pesos.

Propaganda in Peace and War

Mr. Sydney Rogerson, at a London Rotary Club luncheon on September 24, said that when the history of the twenty years 1919-1939 was written one of the most serious charges which would be levelled against the democracies would be that their Governments had failed in their duties by not putting the truth as they saw it before the people who had elected them. During those years propaganda had raged uncontrolledly in Great Britain, France, and the U.S.A. Any party of enthusiasts had been permitted to raise funds to run propaganda against the established order; the result had been that in the hour of crisis the public mind was not a little confused.

Mr. Rogerson said that because in war the propaganda directed against the enemy was conducted as unscrupulously as any other branch of total war, all propaganda, either in peace or war, had become subject to the fallacy that it was a discreditable activity which a liberal State should not contemplate. That was certainly not correct, but it had effectively prevented propaganda being used as it might—and in his opinion should—be used in peacetime and as a beneficent force. Mr. Rogerson concluded by drawing attention to the fact that the President of the United States met the press and talked to its representatives freely and frankly each week; Mr. Lloyd George had done much the same a quarter of a century ago. He asked why the Prime Minister could not do so, and urged that it would be the start of a Governmental lead to public thought which was essential.

XUM

Railway Stock Market

Pending more detailed news as to the latest war developments in Russia, business in the stock and share markets failed to show sustained improvement. Nevertheless, demand was better in some directions, and with selling again on a very moderate scale, security values have shown an upward trend. Gilt-edged stocks remained very firm, aided by the weight of money awaiting investment, and where changed, fractional gains were recorded in home railway prior charges. Nevertheless, demand for the latter showed no widespread expansion, although they continue to offer yields in excess of those obtainable on other first-class investments. In fact, sentiment as to home railway stocks generally has continued to be dominated by uncertainty as to the basis of the war damage insurance scheme for public utility companies. To what extent the railways decide to treat contributions under this scheme as a charge against revenue will have a vital bearing on dividend prospects of the junior stocks; but on the other hand, it will not have any important influence on the investment merits of the prior charges, unless, of course, future air raid damage were on a very heavy scale. In fact, the market remains very hopeful that rates of dividend on the junior stocks will be maintained, and despite uncertainty regarding the war damage position, prices have shown some response to the better conditions obtaining on the Stock Exchange at the time of writing.

As compared with a week ago, Great Western ordinary stock improved a point to 41¾. Great Western preference stock remained at par, and the 4 per cent. debentures were a point higher at 109. Better demand was in evidence for L.M.S.R. ordinary, which on balance, rallied from 15 to 16¼. Moreover, L.M.S.R. senior and 1923 preference stocks each gained a point to 64 and 50½ respectively. On the other hand, this railway's guaranteed stock was unchanged at 94½, although elsewhere, the 4 per cent. debentures were fractionally higher at 102. In fact, there were small gains in other debenture issues of the main-line railways, which were responsive to the upward trend in British Funds. L.N.E.R. 3 per cent. debentures were slightly higher at 76, while the 4 per cent. debentures were 101, compared with 100½ a week ago. L.N.E.R. guaranteed stocks, which continue to give apparently generous yields, were little changed, the seconds having been maintained at 75½, and the firsts were 86, as compared with 85½ a week back. The first preference at 49½ recorded a fractional gain, as did the second preference at 17¾. Southern preferred, which appeared to come in for more attention than either L.M.S.R. 1923 preference or L.N.E.R. first preference, moved up on balance from 62 to 63½, although Southern deferred at 14¾ was virtually unchanged. Southern preference was unchanged at 98½, but in other directions, the 4 per cent. debentures made the increased price of 107. Hopeful views as to the possibility of the maintenance of the dividend at 3 per cent. were reflected by a better tendency in London Transport "C" which was 42¼, compared with 41½ a week ago; the prior charges were also higher, the 4½ per cent. "A" being 113¾, and the 5 per cent. "B" 114¼. In fact, the tendency at the time of writing is for home railway prior charges to come in for better demand; this may become more marked if, as is generally expected, the upward trend in British Funds and high class investments is continued. Moreover, if as is hoped, particulars of the public utility war damage scheme, tend to confirm the prevailing assumption that there are reasonable prospects of dividends being maintained on the junior securities, prices of the latter would probably show good response in price, bearing in mind the large yields obtainable, assuming, of course, that surrounding conditions on the Stock Exchange are not reactionary.

Further buying of Argentine railway securities was again in evidence, and many of the debenture stocks, which continued to be held firmly and were not in large supply, showed good improvement. B.A. Gt. Southern 4 per cent. debentures were 57, B.A. & Pacific consolidated debentures 46, and B.A. Western 4 per cent. debentures 39½, and Central Argentine 4 per cent., and 5 per cent. debentures were both quoted at 36½. Preference and ordinary stocks also participated in the improved tendency, and speculative activity in the latter was inclined to increase. Elsewhere, San Paulo was better, and a higher price ruled for Canadian Pacific.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1940-41	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1940	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1940	Prices: Lowest 1940	Prices: Oct. 3 1941	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	28.9.41	28,440	+ 7,050	39	732,930	671,590	+ 61,340	Ord. Stk.	11½	3½	8	Nil
	Argentine North Eastern ...	753	27.9.41	ps. 205,000	+ ps.21,700	13	ps. 2,627,700	ps.2,283,900	+ ps.343,800	,,	3½	1	3	Nil
	Bolivar	174	Aug., 1941	3,850	+ 300	34	30,717	32,180	– 1,463	6 p.c. Deb.	6½	5	6½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	5	6½	Nil
	Buenos Ayres & Pacific ...	2,801	20.9.41	ps.1,205,000	+ ps.80,000	12	ps.15,551,000	ps. 13,329,000	+ ps2,222,000	Ord. Stk.	4½	1	5½	Nil
	Buenos Ayres Great Southern	5,082	20.9.41	ps.2,232,000	+ ps.443,000	12	ps.24,410,000	ps. 22,716,000	+ ps.1,694,000	Ord. Stk.	10⅝	3	9	Nil
	Buenos Ayres Western ...	1,930	20.9.41	ps.930,000	+ ps.305,000	12	ps.9,264,000	ps. 7,387,000	+ ps.1,877,000	,,	5⅜	2	6½	Nil
	Central Argentine	3,700	27.9.41	ps. 1,969,400⅜	+ ps.641,200	13	ps.23,358,000	ps. 18,308,550	+ ps.5,049,450	,,	8½	2	6½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	½	2	Nil
	Cent. Uruguay of M. Video	972	20.9.41	20,362	+ 2,224	12	252,361	209,832	+ 42,529	Ord. Stk.	3¾	½	5	Nil
	Costa Rica	188	Aug., 1941	22,983	+ 758	9	47,559	40,856	+ 6,703	Stk.	23½	14	13	15⅜
	Dorada	70	Aug., 1941	12,450	– 850	34	100,750	98,500	+ 2,250	1 Mt. Db.	99	97½	97	6⅛
	Entre Rios	808	27.9.41	ps.286,400	+ ps.32,100	13	ps. 3,896,900	ps. 3,106,400	+ ps.790,500	Ord. Stk.	4	½	4½	Nil
	Great Western of Brazil ...	1,016	27.9.41	9,600	– 300	39	345,300	377,900	– 32,600	Ord. Sh.	4/-	1/-	⅜	Nil
	International of Cl. Amer. ...	794	Aug 1941	$404,818	+ $49,964	35	$3,889,669	$4,079,630	– $189,961	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	9d.	9d.	½	Nil
	La Guaira & Caracas... ...	22½	Sept.,1941	6,180	– 2,060	39	58,005	60,300	– 2,295	—	6	4	—	—
	Leopoldina	1,918	20.9.41	28,959	+ 3,509	38	972,392	848,042	+ 124,350	Ord. Stk.	2 3/16	¼	3½	Nil
	Mexican	483	21.9.41	ps. 270,000	+ ps.30,400	12	ps. 3,582,200	ps. 3,121,300	+ ps.460,900	,,	2/11½	1/8	⅜	Nil
	Midland of Uruguay ...	319	Aug. 1941	12,516	+ 1,310	9	27,026	21,592	+ 5,434	—	—	—	—	—
	Nitrate	386	30.9.41	6,148	– 822	39	107,301	135,087	– 27,786	Ord. Sh.	2¾	1	3	4⅛
	Paraguay Central	274	27.9.41	$2,920,000	– $2,329,000	13	$43,376,000	$47,360,000	– $3,984,000	Pr. Lt. Stk.	41	36	42½	7⅛
	Peruvian Corporation ...	1,059	Aug., 1941	71,658	+ 2,480	8	137,208	134,599	+ 2,609	Pref.	4	1	4	Nil
	Salvador	100	28.6.41	c12,723	+ c1,600	52	c804,130	c981,987	– c177,857	—	—	—	—	—
	San Paulo	153½	21.9.41	36,375	– 5,590	38	1,416,778	1,385,569	+ 31,209	Ord. Stk.	50	23	42½	4½
	Taltal	160	Aug., 1941	5,985	+ 3,520	8	9,165	4,550	+ 4,615	Ord. Sh.	15/1½	¾	½	Nil
	United of Havana	1,346	27.9.41	17,561	+ 1,082	13	248,599	204,625	+ 43,974	Ord. Stk.	⅜	¼	2	Nil
	Uruguay Northern	73	Aug. 1941	1,337	+ 358	9	2,693	1,926	+ 767	—	—	—	—	—
Canada	Canadian National	23,560	21.9.41	1,269,897	+ 261,220	38	42,368,085	34,384,993	+ 7,983,092	—	—	—	—	—
	Canadian Northern ...	—	—	—	—	—	—	—	—	Perp. Dbs.	86	68	92½	4⅛
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gr.	105½	95 13/32	101¼	3 19/32
	Canadian Pacific	17,153	21.9.41	915,600	+ 208,200	38	30,486,200	23,350,600	+ 7,135,600	Ord. Stk.	9 3/16	4⅛	11½	Nil
India†	Assam Bengal...	1,329	—	—	—	—	—	—	—	Ord. Stk.	99⅜	71	100	3
	Barsi Light	202	31.7.41	14,782	– 7,980	18	67,635	56,587	+ 11,048	—	—	—	—	—
	Bengal & North Western ...	2,086	Aug.,1941	227,325	+ 13,821	22	1,287,150	1,278,852	+ 8,298	Ord. Stk.	283	234	307	5⅞
	Bengal-Nagpur	3,269	31.5.41	283,725	+ 21,334	9	1,509,300	1,552,418	– 43,118	,,	96	83⅞	100¼	4
	Bombay, Baroda & Cl. India	2,986	20.9.41	311,175	+ 48,150	24	4,922,175	4,585,200	+ 336,975	,,	108	99	107½	5⅝
	Madras & Southern Mahratta	2,939	31.7.41	200,250	+ 39,623	18	2,427,279	2,107,868	+ 319,411	,,	104	97⅞	102½	7⅛
	Rohilkund & Kumaon ...	571	Aug., 1941	47,025	– 2,174	22	301,312	301,286	+ 26	,,	284	238	300	5⅞
	South Indian	2,500	20.5.41	140,378	+ 13,073	7	691,539	626,491	+ 65,048	,,	93½	83	97½	4⅛
Various	Beira	204	July, 1941	74,593	—	43	727,546	—	—	—	—	—	—	—
	Egyptian Delta	610	20.7.41	7,047	+ 2,422	16	74,113	51,576	+ 22,537	Prf. Sh.	7/10½	⅜	1⅛	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	44⅛	65	5⅜
	Midland of W. Australia ...	277	May, 1941	17,591	+ 3,683	48	167,924	145,304	+ 22,620	Inc. Deb.	88	80	89½	6 1/16
	Nigerian	1,900	28.6.41	44,945	– 12,185	13	697,968	499,238	+ 198,730	—	—	—	—	—
	Rhodesia	2,442	July, 1941	464,690	—	43	4,682,300	—	—	—	—	—	—	—
	South Africa	13,291	16.8.41	785,433	+ 68,629	20	14,684,614	13,246,644	+ 1,437,970	—	—	—	—	—
	Victoria	4,774	May, 1941	986,485	+ 241,016	48	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛

‡ Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in pesos